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Annotated checklist of insects associated with native pines in British Columbia

David Evans

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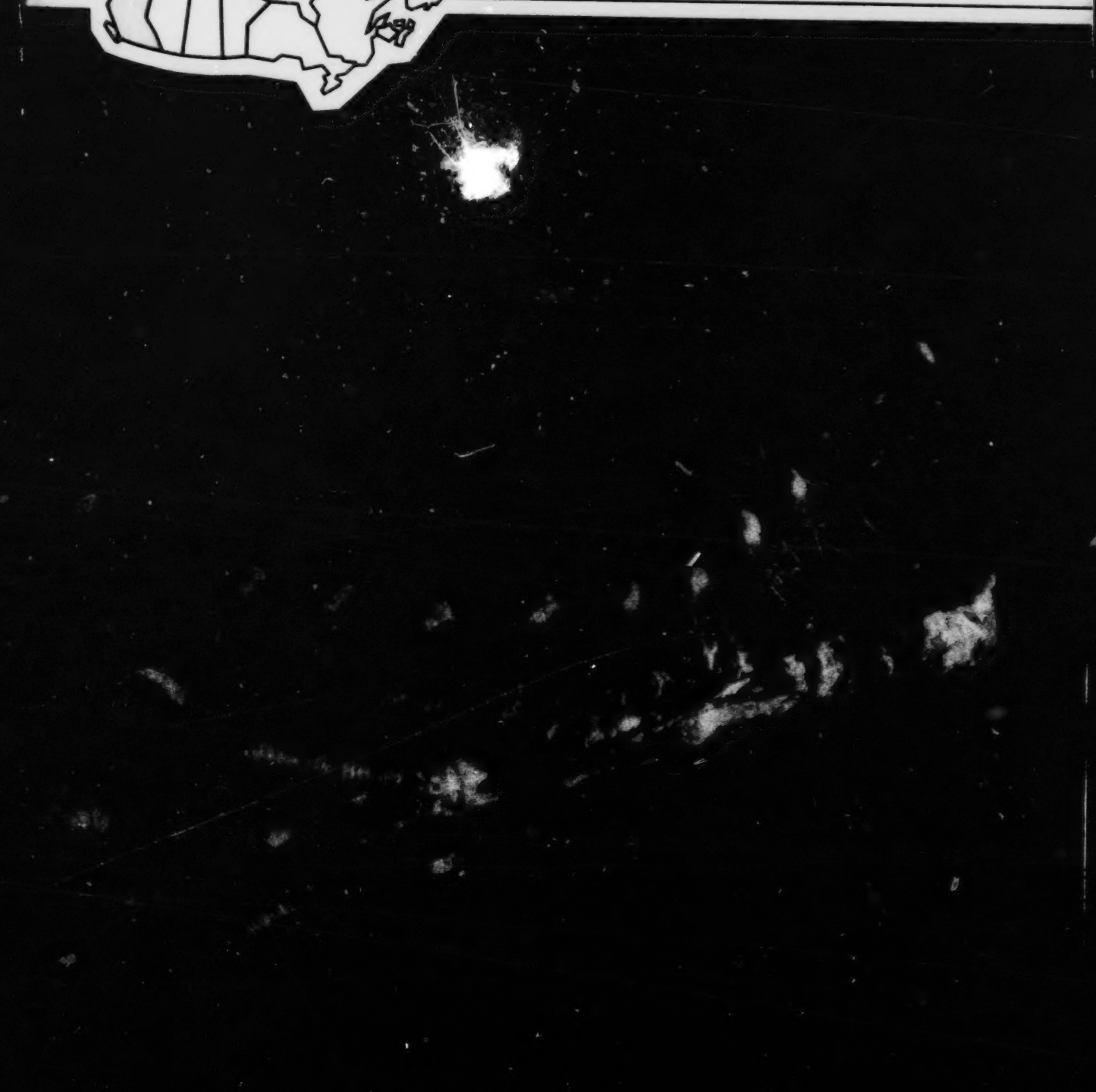
Pacific Forest Research Centre



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Cover photo: A common cutworm larva, *Panthea portlandia*.

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ABSTRACT

Derived from Forest Insect and Disease Survey data, this annotated checklist contains approximately 1230 insect species associated with native pines in British Columbia, as recorded from 1949-1982. They are catalogued alphabetically by genus under family and order, and an index is provided. Included are the approved common names, feeding habits, general economic status, relative abundance, geographic distribution, and the pine species on which they have been collected. Brief descriptive notes are added to families and important species. Outline maps of forest divisions and tree ranges are shown, and a key to the common insect groups, by adult stage, is given.

RÉSUMÉ

Cette liste annotée a été établie à partir des données du Relevé des insectes et des maladies des arbres. Elle comprende environ 1230 espèces d'insectes associées aux pins indigènes de la Colombie-Britannique et mentionnées dans les relevés de 1949 à 1982. Les espèces sont énumérées alphabétiquement selon le genre, la famille et l'ordre et regroupées dans un index. La liste indique également le nom commun officiel, les habitudes alimentaires, l'importance économique générale, l'abondance relative, la distribution géographique et les especès de pin sur lesquels les insectes ont été récoltés. Les familles et les espèces importantes sont décrites brièvement. Des cartes sont également incluses; elles font état des divisions forestières et de l'extension du domaine des arbres. Enfin, und clé permet de retrouver les principaux groupes d'insectes d'après leur stade adulte.

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ANNOTATED CHECKLIST OF INSECTS ASSOCIATED WITH NATIVE PINES IN BRITISH COLUMBIA

PREFACE

This publication is a comprehensive checklist of insects associated with pines in British Columbia forests. The data are derived principally from Forest Insect and Disease Survey records 1949-1982, augmented by information from PFRC study projects, particularly "Pine shoot insects common in British Columbia", Evans 1982.[1] More than 1200 species are included.

The insects are listed by scientific name - alphabetically under order, family, genus and species - and an index is provided. Species authors are included, as are common names approved by the Entomological Society of America, which are capitalized; some recent name changes are indicated. Those species recognized as destructive pests of pine are underlined; species known to be capable of causing occasional damage are marked by broken underline. Many of the insects are not actual pine feeders, but utilize the trees for shelter, or are associated with other insects more directly dependent on pines. The relationship to pines is mentioned in the family description or after the insect name, and the following definitions have been used:

accidental records	- recorded in collections off pines, but originating from other sources.
colonial defoliators	- foliage-eating insects living as a group.
parasites	- parasites of (pine) insects.
predators	- preying on (pine) insects.
sap feeders	- insects that suck plant juices.
sheltering records	- insects resting on pines, possibly scavenging some form of food or moisture.
solitary defoliators	- foliage feeders living as individuals, although sometimes in large numbers in close proximity.

General occurrence is shown by plus symbols:

+ = rare, 1 or 2 annual records.
++ = usually found in small numbers, several annual records.
+++ = consistently found in small numbers, and/or sometimes in large numbers in localized areas; 20-30 annual records.
++++ = commonly found in large numbers, sometimes over wide areas, but not necessarily causing serious damage.

Distribution (Fig. 1), next in sequence, using lower case letters, is abbreviated according to Forest Divisions as currently recognized by the B.C. Ministry of Forests. In the text, distribution areas are listed alphabetically.

1/ Environment Canada, Canadian Forest Service, Pacific Forest Research Centre, Victoria, B.C. BC-X-233. 56pp.

ci - central interior: Cariboo, frequently including the northern margin of Kamloops.
e - eastern B.C.: usually including most of Nelson, and the eastern halves of Kamloops, Cariboo and Prince George.
ei - eastern interior: eastern Cariboo and east thereof.
i - interior B.C.: east of the coastal mountains.
n - northern B.C.: Prince Rupert and Prince George.
ne - northeast B.C.: northern and/or eastern Prince George.
ni - northern interior: Prince George, frequently including Prince Rupert east of the coast mountains.
nw - northwest B.C.: Prince Rupert, occasionally including a small part of Cariboo.
s - southern B.C.: Vancouver, including Vancouver Is.; Kamloops and Nelson.
se - southeast B.C.: Nelson, occasionally including a small part of Kamloops.
si - southern interior: Kamloops, possibly including a small part of Nelson or Vancouver.
svi - southern Vancouver Island: primarily south of Alberni Inlet; may include the Gulf Islands.
sw - southwest B.C.: Vancouver, usually the southern section, and Vancouver Island.
t - generally throughout B.C.
w - western B.C.: Vancouver and Prince Rupert, particularly the coast and the western slopes of the Cascade Mtns.

Host tree abbreviations are those used by BCMF. Additional convenient categories have been added, including an abbreviation for limber pine. In the text, hosts are listed in preferential order. A host distribution map is provided (Fig. 2). Descriptive annotations are given for the more significant insects.

C: coniferous hosts other than native pines
D: deciduous hosts
O: "other" hosts: shrubs, herbage, mixed coniferous and deciduous, etc.
Pf: limber pine, P. flexilis James
Pl: lodgepole pine, P. contorta latifolia Engelmann
Ps: shore pine, P. c. contorta Douglas
Pw: western white pine, P. monticola Douglas
Pwb: whitebark pine, P. albicaulis Engelmann
Py: ponderosa pine, P. ponderosa Lawson

It must be stressed that most of the data apply to specimen recovery from pines ONLY, in British Columbia. Distribution, occurrence, status and habits may be quite different if other host plants and/or areas are considered.

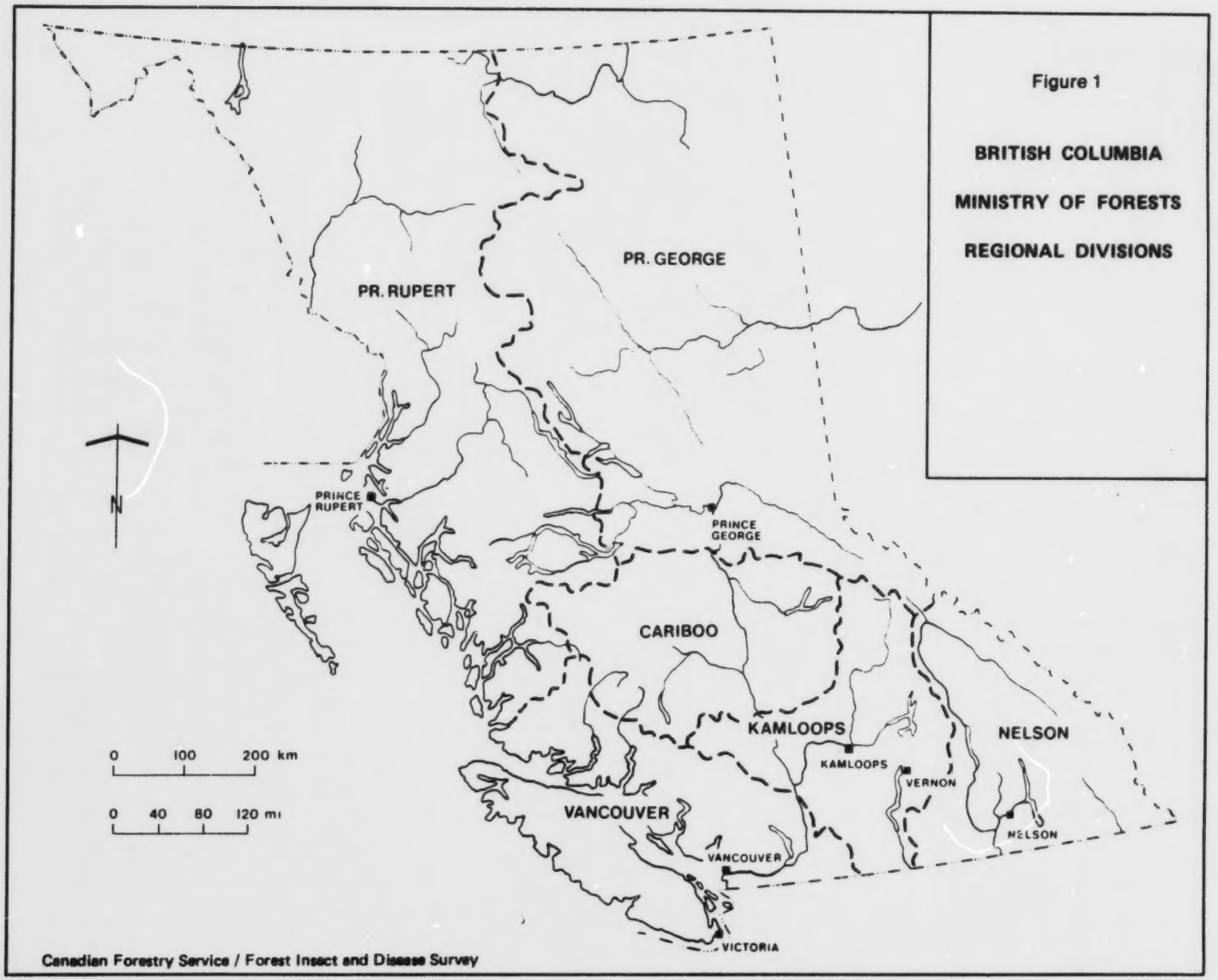
Figure 1
BRITISH COLUMBIA
MINISTRY OF FORESTS
REGIONAL DIVISIONS
PR. RUPERT
PR. GEORGE
CARIBOO
KAMLOOPS
NELSON
VANCOUVER
PRINCE RUPERT
PRINCE GEORGE
KAMLOOPS
VERNON
NELSON
VANCOUVER
VICTORIA
N
0 100 200 km
0 40 80 120 mi
Canadian Forestry Service / Forest Insect and Disease Survey

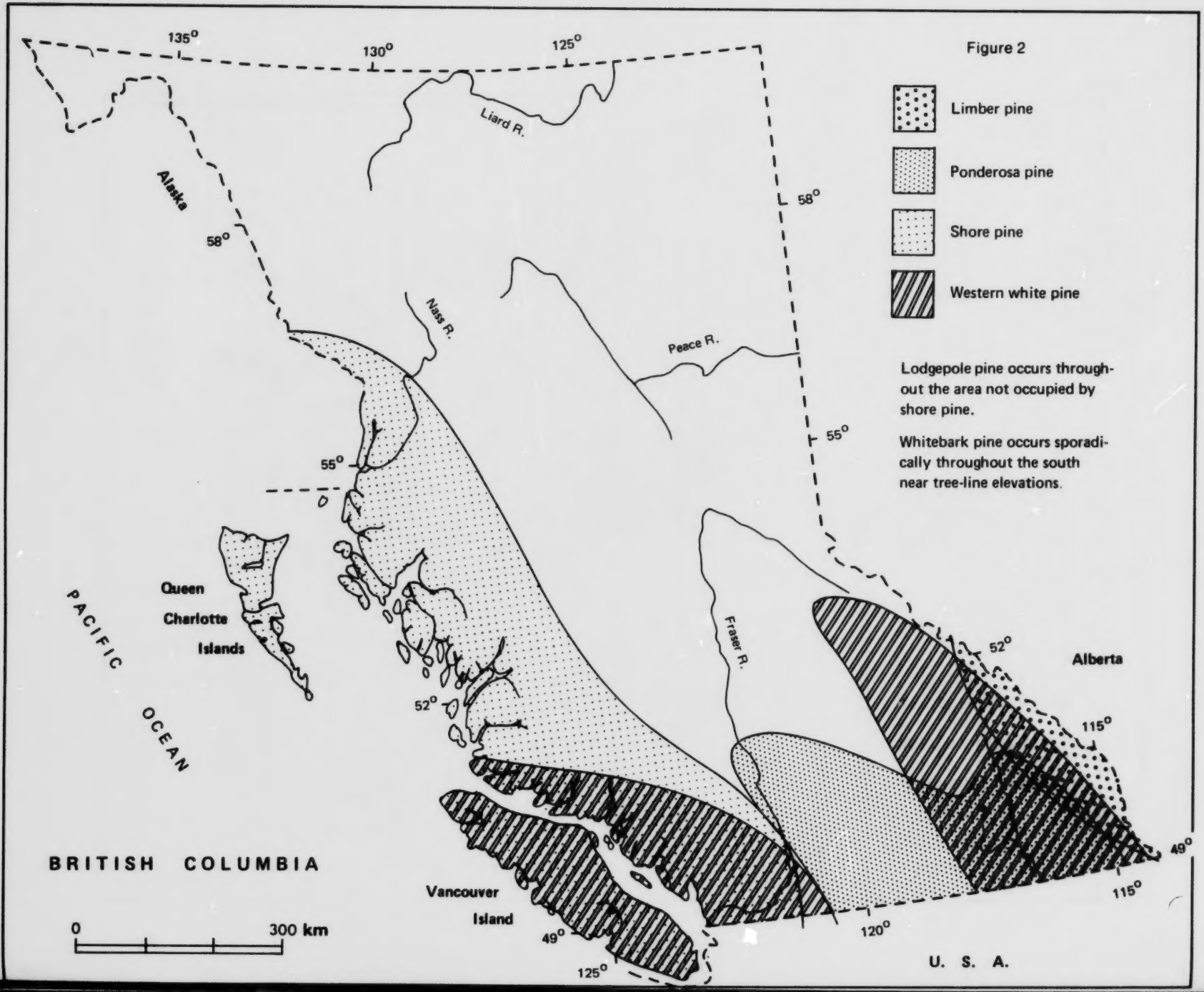
Figure 2
Limber pine
Ponderosa pine
Shore pine
Western white pine
Lodgepole pine occurs throughout the area not occupied by shore pine.
Whitebark pine occurs sporadically throughout the south near tree-line elevations.
135°
130°
125°
Liard R.
Alaska
58°
Nass R.
Peace R.
55°
Queen Charlotte Islands
PACIFIC OCEAN
Fraser R.
52°
Alberta
115°
49°
BRITISH COLUMBIA
Vancouver Island
120°
U. S. A.
0
300 km

KEY TO INSECT ORDERS

The key applies principally to the adult stages of the common groups in the checklist.

1. Three pairs of legs, or appearing legless;
   body usually more than 2 mm long 2
   Four pairs of legs;
   body usually less than 1 mm long ..... Acarina: mites

2. (1) Sucking/piercing mouthparts 3
   Biting/chewing mouthparts 7

3. (2) Mouthparts coiled; wings, if present,
   with scaly pattern ..... Lepidoptera: moths & butterflies
   Mouthparts beak-like; wings not scaly, often clear 4

4. (3) Mouthparts slender and conspicuously jointed;
   usually two pairs of wings 5
   Mouthparts not obviously jointed 6

5. (4) Forewings usually divided into a leathery section
   and a (clear) membranous section;
   folded flat at rest ..... Hemiptera: bugs
   Wings, if present, all of similar texture;
   held roof-like at rest ..... Homoptera: bugs

6. (4) One pair of wings ..... Diptera: flies
   Two pairs of fringed wings; soft slender insects
   usually less than 2 mm long ..... Thysanoptera: thrips

7. (2) Hind legs enlarged for jumping ..... Orthoptera: grasshoppers
   Hind legs usually not enlarged for jumping 8

8. (7) Forewings shell-like or leathery;
   rear wings, if present, membranous 9
   Wingless, or all wings of similar texture throughout 10

9. (8) Forcep-like appendages at rear of body;
   insect flat, dark brown ..... Dermaptera: earwigs
   Body without conspicuous posterior
   appendages ..... Coleoptera: beetles (in part)

10. (8) Wingless, or apparently so 11
    Obviously winged 14

11. (10) Tiny, dark-colored, soft-bodied, gregarious insects,
    usually less than 3 mm long, with very short
    antennae; abdomen often with a spring-like
    appendage underneath ..... Collembola: springtails
    Otherwise, usually larger, no ventral "spring" 12

12. (11) "Wasp-waisted"; antennae obviously "elbowed" ..... Hymenoptera (in part): ants
Thick-waisted; antennae variable 13

13. (12) Soft-bodied insects, pale brown or black, with large, slightly flattened heads and short, bead-like antennae . Isoptera: termites (in part)
Otherwise ..... Coleoptera: beetles (in part)

14. (10) Rear wings relatively small, about 1/4 size of the forewings; soft insects with long antennae and abdominal appendages .. Ephemeroptera: Mayflies
Rear wings relatively much larger, or body without long abdominal appendages 15

15. (14) Rear wings obviously larger than the forewings, or at least wider 16
Rear wings smaller, or about the same width as the forewings 17

16. (15) Flat-bodied insects; wings held flat at rest..... Plecoptera: stoneflies
Body cylindrical; wings held roof-like at rest ..... Trichoptera: caddisflies

17. (15) All wings approximately the same size, shape, texture and pattern 18
Rear wings smaller than forewings, with much less venation . 21

18. (17) Antennae inconspicuous, bristle-like ..... Odonata: dragonflies
Antennae long, thread-like 19

19. (18) Antennae scarcely longer than width of head; insect ochreous-brown or black including wing veins ..... Isoptera: termites (in part)
Antennae usually much longer than head width, usually approaching body length 20

20. (19) Large insects, more than 7 cm in wingspan; antennae long and tapered ..... Megaloptera: fishflies
Wingspan usually much less than 7 cm, or else antennae club-like or relatively short ..... Neuroptera: lacewings

21. (17) Tiny, active, soft-bodied, thick-waisted insects, usually less than 3 mm long; long, thread-like antennae ..... Psocoptera: barklice
Otherwise, usually larger; body usually shell-like, frequently "wasp-waisted" ..... Hymenoptera (in part): bees, wasps

ANNOTATED LIST

	Occurrence	Distribution	Host
ACARINA: mites Tiny spider-like creatures utilizing a wide range of habit and hosts, i.e. plant galls, surface predators, scavengers.			
Eriophyidae: gall mites, blister mites			
Setopus flexilis Keiffer Feeds in leaf bases.	+	sw	Ps
Trisetacus campnodera Keiffer & Saunders Causes wrinkled foliage.	+	sw	Ps
Trisetacus ehmanni Keiffer Forms a bud gall.	+	ni	Pl
Trisetacus sp. Causes deformed needles.	+	sw	Pl
Stigmaeidae			
Zetzellia sp. Predator.	+	sw	Ps
Tetranychidae: spider mites Plant feeders.			
Oligonychus sp.	+	svi	Ps
Tydeidae			
Tydeus sp. ?Predator.	+	si	Py

	Occurrence	Distribution	Host
COLEOPTERA: beetles			
Alleculidae: comb-clawed bark beetles Larvae may feed under dead bark; the dark colored adults are occasionally found on tree surfaces, but they do little feeding. The following records are of adults.			
Androchirus sp.	+	nw	Pl
Hymenorus caurinus Fall	+	se	Pl
Isomira variablis Horn	+	w	Ps,Pl,Pw,Py
Pseudocistela pacifica R. Hopping	+	se,si	Py
Anobiidae: drugstore beetles Although these insects are often household/structural pests, there is a great variety of species and habit. In pines, the curled white larvae bore in dying or dead parts of the trees, most frequently in the small branches. The feeding of the adults is negligible. Distribution is usually wide but sparse.			
Coelostethus quadrulus (Leconte)	+	svi	Ps,Pw
Ernobius marginicollis (Leconte)	+	s	Pl,Ps
Ernobius pallitarsis Fall	+	se,si	Py
Ernobius punctulatus (Leconte)	+	svi	Ps
Hadrobregmus gibbicollis (Leconte)	+	svi	Ps
Megorama viduum Fall	+	sw	Ps
Utobium elegans (Horn)	+	w	Ps,Pl,Pw
Vrilleta decorata Van Dyke	+	sw	Pw
Xestobium affine Leconte	+	sw	Ps
Xyletinus fucatus Leconte	+	i,sw	Pl

Bostrichidae: branch/twig borers
Larvae are occasionally found in woody parts of trees; adults do little feeding.

Stephanopachys sobrinus Casey	+	se	Pl

Bruchidae: bean weevils
Small weevil-like beetles.

Bruchus brachialis Fahraeus Vetch bruchid Sheltering record.	+	svi	Ps

Buprestidae: flat-headed wood borers
Larvae may be bark/wood borers; adults may be sheltering on the trees or feeding on plant material.

Agrilus politus (Say) Sheltering record.	+	nw	Pl
Anthaxia aeneogaster Castelnau Sheltering record.	+	i	Pl
Anthaxia deleta Leconte Sheltering record.	+	i	Pl
Buprestis adjecta (Leconte)	+	s	Pl,Ps,C,Pw
Buprestis aurulenta Linnaeus Golden buprestid	+	n,sw	C,Pl,Ps
Buprestis langii (Mannerheim)	+	se	C,Pl,Pw
Buprestis maculativentris	+	ci	C,Pl
Buprestis nuttalli (Kirby)	+	se	Py
Buprestis rusticorum (Kirby)	+	ci,sw	C,Pl,Ps
Buprestis subornata (Leconte)	+	si	Py
Chalcophora angulicollis Leconte Sculptured pine borer	+	t	C,Pl,Ps
Chrysobothris carinipennis Leconte	+	se	Py
Chrysobothris caurina Horn	+	se	Py
Chrysobothris dentipes (Germar)	+	si	Pl
Chrysobothris trinervia (Kirby)	+	e	C,Pl,Py,Pw

Dicerca crassicollis	+	se	Py
Dicerca tenebrica Kirby Sheltering record.	+	e	Pl
Dicerca tenebrosa (Kirby)	+	ci,se	C,Pl
Melanophila acuminata (DeGeer)	+	se	Py
Melanophila californica Van Dyke California flat-headed borer	+	se	Py
Melanophila drummondi (Kirby) Flat-headed fir borer	+	t	C,Pl,Ps,Py
Melanophila gentilis Leconte	+	se,si	Py,Pw
Melanophila intrusa Horn	+	se	C,Pl
Poecilonota montana Chamberlin Sheltering record.	+	ci	Pl
Trachykele blondeli Marseul Western cedar borer Sheltering record.	+	sw	Ps

Byrrhidae: pill beetles
Occasionally found as sheltering adults.

Byrrhus sp.	+	nw	Pl
Morychus oblongus (Leconte)	+	se	Pl
Tylicus subcanus (Leconte)	+	se	Pl

Cantharidae: leather-winged beetles
The predacious black adults may shelter in foliage, and probably find food there also. The following are all sheltering records.

Cantharis oregona Leconte	+	w	Ps,Pw
Malthodes sp.	+	ni	Pl
Podabrus cavicollis Leconte	+	w	Ps,Pl,Pw
Podabrus cinctipennis Leconte	+	nw	Pl
Podabrus confraternus Fall	+	nw	Ps,Pl,Pw

Podabrus excursus Fall	+	e	Pl
Podabrus laevicollis (Kirby)	+	ci	Pl
Podabrus piceatus Fender	+	sw	Pl
Podabrus piniphilus (Eschscholtz)	++++	t	Pl,Ps,Pwb
Podabrus pruinosus Leconte	+	t	Pl,Ps,Py
Podabrus pustulatus Fender	+	sw	Pw
Podabrus scaber Leconte	+	e,se	Pl
Podabrus teteragonoderus Fall	+	nw	Pl
Silis cava Leconte	+	ci	Pw
Silis difficilis Leconte	+	w	Pl,Ps
Silis lutea filigera Leconte	+	nw	Pl
Silis pallida Mannerheim	+	nw	Pl

Carabidae: ground beetles
A large diverse group;
larvae and adults are
usually active predators.
The following are all
sheltering records.

Agonum decens (Say)	+	ci	Pl
Agonum quadripunctatum (Dejean)	+	nw	Pl
Amara pallipes (Kirby)	+	sw	Pw
Amara spp.	+	si	Pl
Bembidion spp.	+	ci	Pl
Calathus ingratus Dejean	+	ni	Pl
Dromius piceus Dejean	+	se	Pl
Lebia ornata Say	+	sw	Pw
Nebria sp.	+	ci	Pl
Notiophilus sp.	+	w	Pl
Zezea pallipes Kirby	+	sw	Pw

Cephaloidae: flower beetles
Adults may shelter on foliage.

Cephaloon bicolor Horn	+	n,w	Pl,Ps,Pw,Pwb
Cephaloon lepturides Newman	+	sw	Pw
Cephaloon tenuicorne (Leconte)	++	t	Pl,Ps,Pw

Cerambycidae: long-horned beetles, round-headed wood borers
An extensive group of relatively large insects; the white nearly-legless larvae may bore in the wood or other parts of the tree; adults do little feeding, but are found sheltering. Unless otherwise indicated, the following are all sheltering records; however, damage descriptions and additional tree hosts are given for those species that do bore in pines.

Acmaeops pratensis (Laicharteg)	+	nw	Pl
Acmaeops proteus (Kirby) A bark/wood borer - some feeding records.	+	n	C,Pl
Acmaeopsoides rufula (Haldeman)	+	ci	Pl
Anoplodera amabilis (Leconte)	+	sw	Pl
Anoplodera aspera (Leconte)	+	ci	Pl
Anoplodera canadensis Olivier A wood borer - some feeding records.	+	e	C,Pl,D,Pw
Anoplodera chrysocoma (Kirby) A deadwood borer.	+	ci	Pl,C,D
Anoplodera crassipes (Leconte)	+	sw	Ps,Pl,Pw
Anoplodera dehiscens (Leconte)	+	sw	Ps,Pw
Anoplodera dolorosa (Leconte)	+	sw	Ps,Pw
Anoplodera laetifica (Leconte)	+	i	Pl
Anoplodera mutabilis (Leconte)	+	ci	Pl
Anoplodera nigrella (Say)	+	i	Pl
Anoplodera sanguinea (Leconte)	+	se	Pl

Anoplodera sexmaculata (Linnaeus)	+	i	Pl
Anoplodera tibialis Leconte	+	sw	Ps,Pw
Arhopalus foveicollis Haldeman	+	se	Py,Pw
Asemum nitidum Leconte	+	se	Py
Asemum striatum Kirby A wood borer in branches/boles - some feeding records.	+	ni	C,Pl,Ps
Callidium sp. A bark/sapwood borer in dying/ injured trees - some feeding records.	+	w	Pl,C
Centrodera spurca Leconte	+	i	Pl,Ps
Clytus planifrons Leconte	+	sw	Ps
Cortodera coniferae Hopping & Hopping	+	i,se	Pl
Cortodera longicornis (Kirby)	++	i,se	Pl
Cortodera subpilosa Leconte	+	i	Pl
Ergates spiculatus Leconte A large borer in old wood, Particularly at ground level.	+	ci	Py
Evodinus vancouveri Casey	+	i,w	Pl,Ps
Grammoptera filicornis (Casey)	+	nw	Pl,Ps
Grammoptera subargentata (Kirby)	+	e	Pl
Holopleura marginata Leconte	+	se	Pw
Leptalia frankenhauseri (Mannerheim)	+	se	Py
Leptalia macilenta (Mannerheim)	+	se,si	Pw,Py
Leptura obliterata (Haldeman) A wood borer, usually in decayed wood; some feeding records.	+	t	C,Pl,Ps,Pw

Megasemum asperum (Leconte)	+	se	Pl
Molorchus longicollis Leconte	+	se,si	Py
Monochamus maculosus Haldeman Spotted pine sawyer A large bark/wood borer in dying/dead trees.	+	s	Pl,Ps,C
Monochamus notatus (Drury) Northeast sawyer A large bark/wood borer in dying/dead trees.	+	se	Pw
Monochamus oregonensis Leconte Oregon fir sawyer A large bark/wood borer in dying/dead trees. The near-black adults, 13-35 mm body length, have conspicuously long antennae.	++	t	C,Pl,Ps
Monochamus scutellatus (Say) White-spotted sawyer A large bark/wood borer - some feeding records.	+	i	C,Pl
Neacanthocinus obliquus (Leconte)	+	s	Py
Neoclytus muricatulus (Kirby) A bark/wood borer - some feeding records.	+	ci	C,Pl
Opsimus quadrilineatus Mannerheim A wood borer - some feeding records.	+	w	C,Ps
Pachyta lamed (Linnaeus) A deadwood borer.	+	ni	C,Pl
Phymatodes decussatus Leconte	+	se	Py
Phymatodes dimidiatus (Kirby)	+	se	Pl
Phymatodes nitidus Leconte	+	sw	Ps
Pidonia scripta Leconte	+	sw	Ps
Plectrura spinicauda Mannerheim	+	sw	Ps,Pl,Pw
Pogonocherus pictus Fall	+	ni	Pl
Pogonocherus propinquus Fall	+	se	Pl

Prionus californicus Motschulsky California prionus A root borer - some feeding records.	+	ci,sw	Pl,Ps
Rhagium inquisitor (Linnaeus) A bark/wood borer in dead trees.	+	s,w	Pl,Ps,C,Pw
Rhagium obtusus (Leconte)	+	si	Pl
Saperda concolor Leconte	+	sw	Py
Semanotus sp. A bark/sapwood borer in dying trees - some feeding records.	+	se	C,Pl
Spondylis upiformis Mannerheim Probably a root borer.	+	ni,se	Pl
Tetropium velutinum Leconte A bark/wood borer in weakened trees - some feeding records.	+	se	C,Pl
Tragosoma depsarium (Linnaeus) A wood borer in old wood.	+	sw	Py
Xestoleptura tibialis (Leconte)	++	i	Pl
Xylotrechus undulatus (Say) A wood borer.	+	i	Pl

Chrysomelidae: leaf beetles
Small colorful plant feeders, but the adults found on pine are usually sheltering.

Altica ambiens (Leconte) Alder flea beetle	+	ci	Pl
Altica tombacina Mannerheim	+	t	Pl,Ps,Pw
Altica spp.	+	t	Pl,Ps
Bromius (Adoxus) obscurus (Linnaeus) Western grape rootworm	+	t	Pl,Ps,Pw
Chalcoides fulvicornis (Fabricius)	+	nw	Ps
Chrysolina quadrigemina (Suffrian) Klamathweed beetle	+	se	Pl
Chrysomela mainensis littorea Brown	+	nw	Pl

Chrysomela scripta Fabricius Cottonwood leaf beetle	+	nw	Pl,Ps
Cryptocephalus notatus Fabricius	+	se	Py
Donacia proxima Kirby	+	ci	Pl
Glyptoscelis longior Leconte	+	i,se	Pl,Pw,Py
Gonioctena americana (Schaeffer) American aspen beetle	+	ni	Pl
Gonioctena notmani (Schaeffer)	+	ne	Pl
Luperodes lecontei Crotch	+	ci	Py
Luperodes varipes Leconte	+	si	Py
Orsodacne atra (Ahrens)	+	n	Pl
Phratora purpurea purpurea Brown	+	nw	Pl
Pyrrhalta decora carbo (Leconte) Pacific willow leaf beetle	+	n,sw	Pl,Ps,Pw
Pyrrhalta punctipennis (Mannerheim)	+	w	Ps,Pl
Syneta albida Leconte	+	nw	Pl
Syneta carinata Mannerheim	+	t (except se)	Pl,Ps
Syneta hamata Horn	+	nw	Pl,Ps
Syneta pilosa Brown	++	w	Pl,Ps
Trirhabda pilosa Blake	+	ce	Py

Cleridae: checkered beetles
Common active predators; the pink/brown larvae may be found under dead bark in association with bark boring insects, adults may occur anywhere on the trees.

Corinthiscus fasciatum (Leconte)	+	sw	Pw
Enoclerus humeralis Schaeffer	+	s	Pw,Py
Enoclerus lecontei (Wolcott) Black-bellied clerid	+	ci	Py
Enoclerus moestus Klug	+	ci,se,si	Py,Pw

Enoclerus schaefferi Barr	+	ci	Py
Enoclerus sphegeus Fabricius	+	t	Pl,Ps,Pw
Phyllobaenus californicus Van Dyke	+	sw	Pl
Phyllobaenus subfasciata Leconte	+	se	Py
Thanasimus nigriventris Leconte	+	se,si	Py
Thanasimus undulatus Say	+	ci	Pl

Coccinellidae: ladybird beetles
Common predators.

Adalia annectans Crotch	+	se	Py
Adalia bipunctata (Linnaeus) Two-spotted lady beetle	+	se,si	Py,Pw
Adalia frigida (Schneider)	+	t	Pl
Anatis mali (Say)	+	se	Pl
Anisocalvia 14-guttata (Linnaeus)	++	t	Pl
Brachycantha ursina Fabricius	+	se	Py
Chilocorus stigma (Say) Twice-stabbed lady beetle	++	e,s,	Pl,Ps,Pw
Chilocorus tricyclus Smith	+	se	Py
Coccinella fulgida Watson	+	svi	Ps
Coccinella johnsoni Casey	++	svi	Ps
Coccinella monticola Mulsant	+	sw	Pw
Coccinella oregona Casey	+	ci	Py
Coccinella transversoguttata richardsoni Brown Transverse lady beetle	+	ni	Pl
Coccinella trifasciata Linnaeus	+	sw	Ps,Pw
Cycloneda sanguinea Linnaeus	++	sw	Ps,Pl,Pw
Exochomus septentrionis Weise	+	e	Pl
Hippodamia caseyi Johnson	+	si	Py

Hippodamia convergens Guerin-Meneville Convergent lady beetle	+	se	Py
Hippodamia oregonensis Crotch	+	si	Py
Hippodamia parenthesis (Say)	+	ne,sw	Pl,Ps
Hippodamia quinquesignata quinquesignata Kirby	+	i,ne	Pl
Hippodamia sinuata spuria Leconte Sinuate lady beetle	+	se	Pl
Hippodamia tredecimpunctata tibialis (Say) 13-spotted lady beetle	++	sw	Pw
Hyperaspis postica Leconte	+	se	Pl
Microweisia misella (Leconte)	+	se	Pl
Mulsantina hudsonica (Casey)	+	n	Pl
Mulsantina picta minor (Casey)	++++	t	Pl,Ps,Py
Neomysia horni (Crotch)	+	ci,se	Py,Pl
Neomysia montana Casey	+	s	Pw,Py,Pl,Ps
Neomysia pullata (Say)	+	nw,se	Pl,Py,Ps
Neomysia subvittata (Mulsant)	+	se	Pl
Psyllobora viginti-maculata (Say)	+	sw	Ps,Pl,Pw
Scymnus ardelio Horn	+	s	Ps,Pl,Py
Scymnus coniferarum Crotch	+	s	Pw,Py
Scymnus lacustris Leconte	+	ni	Pl
Scymnus marginicollis Mannerheim	+	s	Pl,Pw,Py
Scymnus phelpsi Crotch	+	sw	Ps,Pw

Colydiidae: cylindrical barkbeetles
Diverse feeding habits; occasionally found under dead bark, or on the surface.

Aulonium longum Leconte	+	ci,se	Py,Pl
Coxelus pacificus Horn	+	sw	Pw

Lasconotus complex Leconte	+	s	Pl,Ps
Lasconotus laqueatus Leconte	+	se,si	Pl,Py,Pw
Lasconotus pertenius Casey	+	se	Pl

Cucujidae: flat barkbeetles
Omnivorous feeders, usually found under dead bark.

Cucujus clavipes Fabricius	+	s	Py,Pw
Dendrophagus cygnaei Mannerheim	+	se	Pl

Cupesidae:
Small plant-feeding beetles, little known.

Priacma serrata (Leconte)	+	se	Pl

Curculionidae: weevils, snout beetles
A large group with diverse plant-feeding habits. Larvae may be found boring in most parts of the trees, and adults are commonly found on the surface, where they can cause noticeable defoliation. Most of the following records are for adults sheltering/feeding on the foliage; more definite status to pines is given if it is known.

Cimberis bombifrons (Leconte)	+	ci	Pl
Cimberis sp.	+	s	Ps,Pwb
Cnemognonus lecontei Dietz	+	se	Py
Cossonus pacificus Van Dyke	+	se	Pw
Cossonus piniphilus Boheman	+	s	Pw,Py
Cryptorhynchus (Sternochetus) lapathi (Linnaeus) Poplar and willow borer	+	s	O,Ps,Pl,Pw
Cylindrocopturus deleoni Buchanan	+	e,sw	Pl,Ps
Diodyrhynchus byturoides Leconte	+	si	Py
Dorytomus sp.	+	nw	Ps
Dyslobus granicollis (Leconte)	+	sw	Ps
Dyslobus luteus Horn	+	se	Py
Dyslobus verrucifer Casey	+	s	Ps,Pl,Pw,Py

Grypus equiseti (Fabricius)	+	se	Pl
Gymnaetron tetrum (Fabricius)	+	ci	Py
Hylobius pinicola Couper The larvae feed in roots.	+	ni,se	Pl,Py
Hylobius warreni Wood The larvae feed in roots.	++	i	Pl,Pw
Lechriops californicus (Leconte) The larvae feed in bark.	++	t	Pl,Pw,Ps,Py
Lepyrus gemellus Kirby	+	nw	Pl
Magdalis aenescens Leconte Bronze apple tree weevil	+	sw	D,Ps
Magdalis alutacea Leconte	+	ci	Pl,Py
Magdalis decepta Sleeper	+	se,si	Py
Magdalis gentilis Leconte	++	t	Pl,Ps,Py
Magdalis hispoides Leconte	++	s	Pl,Py,Ps,Pw
Magdalis lecontei Horn The larvae feed in twigs.	++	si	Py,Pl
Magdalis striata Fall	+	si	Py
Magadalis subtincta Leconte	+	se	Pl
Miccotrogus (Tychius) picirostris (Fabricius)	+	se	O,Pl,Pw
Nemocestes horni Van Dyke	+	sw	Ps,Pw
Otiorhynchus (Brachyrhinus) ovatus (Linnaeus) Strawberry root weevil	+	se	O,Pl,Pw
Otiorhynchus (Brachyrhinus) singularis (Linnaeus)	+	sw	Ps
Panscopus gemmatus (Leconte)	+	sw	Pl,Pw
Panscopus pallidus Buchanan	+	se	Pl,Pw
Phyllobius oblongus Linnaeus	+	sw	Ps

Pissodes affinis Randall (curriei Hopkins)	++	t	Pl,Ps,Pw,Py
Pissodes alascensis Hopkins	+	sw	Ps,Pw
Pissodes burkei Hopkins	+	sw	O,Pw,Ps
Pissodes dubius Randall	+	ci	O,Pl
Pissodes fasciatus Leconte	+	t	O,Pl,Ps,Pw,Py
Pissodes radiatae Hopkins Monterey pine weevil A bark borer.	+	w	Ps,Pl,Pw
Pissodes rotundatus Leconte	+	nw,se	Pl,Py
Pissodes schwarzi Hopkins Yosemite bark weevil A bark borer.	++++	t	Pw,Pl,Py
Pissodes similis Hopkins	+	e	Pl
Pissodes strobi (Peck) (engelmanni Hopkins, sitchensis Hopkins) White pine weevil The larvae feed in terminal wood.	+	s	Pl,Ps,Pw
Pissodes terminalis (Hopping) Lodgepole terminal weevil The larvae bore in terminals.	++++	t	Pl,Ps,Py,Pw
Rhynchaenus (Orchestes) parvicollis (Leconte)	+	si	Py
Rhynchaenus (Orchestes) sp.	+	se	Pl
Rhynchites bicolor wickhami Cockerell Rose curculio	+	se	O,Py
Rhyncolus brunneus Mannerheim	+	si	Pl,Py,Pw
Rhyncolus oregonensis Horn	+	ci,se	Py
Sciopithes obscurus Horn	+	n,w	Pl,Ps,Pw
Scythropus californicus Horn The adults can cause noticeable defoliation.	++	t	Pl,ps
Scythropus elegans (Couper) The adults can cause noticeable defoliation.	+++	t	Pl,Ps

Sitona hispidulus (Fabricius) Clover root curculio	+	sw	Pw
Sthereus quadrituberculatus Motschulsky	+	se,w	Ps,Pl,Pw,Py
Strophosoma melanogrammum Forster	+	s	Pl,Ps
Tachypterellus quadrigibbus (Say)	+	se	Py
Trichalophus seriatus (Mannerheim)	+	si	Py

Dascillidae: soft-bodied plant beetles
Adults occasionally found sheltering.

Araeopidius monachus Leconte	+	nw,se	Ps,Py
Macropogon cribricollis Brown	+	ni,w	Pl,Ps,Pw
Macropogon piceus Leconte	+	s,w	Ps,Pl,Pw,Py

Dermestidae: skin beetles, larder beetles
Adults occasionally found sheltering;
probably some feeding on diverse material.

Anthrenus verbasci (Linnaeus) Varied carpet beetle	+	ci	Py
Attagenus piceus Olivier	+	ci	Py
Attagenus spp.	+	nw	Ps
Megatoma nevadica Casey	+	se	Py
Megatoma sp.	+	nw	Pl

Derodontidae: tooth-necked fungus beetles
Larvae and adults may be found in pine
fungi/rusts; adults may shelter/scavenge
on the pine surface.

Peltastica tuberculata Mannerheim	+	nw	Pw

Dytiscidae: predaceous diving beetles
These beetles develop in fresh water,
but the adults are good fliers, and
pines are sometimes used as temporary
shelter.

Agabus sp.	+	nw	Pl

Elateridae: click beetles, wireworms
A large group; the adults are commonly found on trees, particularly in the foliage, on which they occasionally feed.

Agriotella columbiana Brown	+	sw	Pl,Ps
Agriotella occidentalis Brown	+	t	Pl,Ps,Py
Agriotes ferrugineipennis Leconte	++	t	Pl,Ps,Pw,Py
Agriotes limosus (Leconte)	+	ci	Pl
Agriotes tardus Brown	+	ci	Pl,Py
Agriotes thevenetii Horn	+	si	Py
Alaus melanops Leconte	+	ci	Py
Ampedus apicatus (Say)	+	se	Py
Ampedus bimaculatus (Van Dyke)	+	svi	Ps
Ampedus carbonicolor (Eschscholtz)	+	ci,sw	Ps,Py
Ampedus columbianus Brown	+	si,sw,	Ps,Py,Pw
Ampedus nigrinus Herbst	++	t	Pl,Ps,Py
Ampedus phoenicopterus (Germar)	+	w	Pl,Pw
Ampedus pullus (Germar)	+	sw	Pl,Ps
Ampedus rhodopus (Leconte)	+	ci,sw	Ps,Pl,Pw
Ampedus ursinus Van Dyke	+	ci	Py
Athous brevis Van Dyke	+	sw	Ps,Pw
Athous imitans Fall	+	sw	Pl,Ps
Athous nigripilis Motschulsky	+	sw	Ps
Athous pallidipennis Mannerheim	+	w	Ps,Pl,Pw
Athous rufiventris Eschscholtz	++	t	Pl,Ps,Pw
Athous scissus Leconte	+	t	Pl,Ps,Pw
Athous vittiger Leconte	+	w	Ps,Pl,Pw

Cardiophorus edwardsi Horn	+	se	Py
Cardiophorus fenestratus Leconte	+	t	Pl,Py,Ps
Cardiophorus latiusculus Eschscholtz	+	s	Pl,Py,Pw
Cardiophorus longior Leconte	+	se	Py
Cardiophorus tenebrosus Leconte	+	se	Pl,Py
Cardiophorus tumidicollis Leconte	+	se	Py
Ctenicera aereipennis aereipennis (Kirby) Puget Sound wireworm	++	t	Pl,Py,Ps,Pw
Ctenicera angusticollis (Mannerheim)	+	i,sw	Pl,Ps,Pw,Py
Ctenicera arata (Leconte)	+	ci	Pl
Ctenicera bombycina (Germar)	+++	t	Pl,Ps,Py,Pw
Ctenicera callida (Brown)	++	t	Pl,Pw,Ps
Ctenicera comes (Brown)	+	nw	Pl,Ps
Ctenicera cruciata (Leconte)	+	ci	Pl,Ps
Ctenicera glauca Germar	+	se	Pl,Py
Ctenicera hoppingi (Van Dyke)	+	ne	Pl,Pw
Ctenicera insidiosa (Leconte)	+	t (except se)	Pl,Pw,Ps,Py
Ctenicera kendalli (Kirby)	+	ne	Pl
Ctenicera leucaspis Leconte	+	sw	Pl
Ctenicera lobata Eschscholtz	+	w	Pl,Py,Ps,Pw
Ctenicera moerens Leconte	+	sw	Ps,Pw
Ctenicera morula (Leconte)	+	ci	Pl
Ctenicera nebraskensis (Bland)	+	t (except nw)	Pl,Py,Ps,Pw

Ctenicera nigricollis (Bland)	+	i	Pl,Py
Ctenicera nitidula Leconte	+	i	Pl,Py
Ctenicera ochreipennis (Leconte)	+	i	Pl,Pw
Ctenicera propola (Leconte)	++	t	Pl,Ps,Py,Pw
Ctenicera pudica (Brown)	+	s	Pl,Py,Pw,Ps
Ctenicera resplendens Eschscholtz	+	i	Pl,Py,Pw
Ctenicera rotundicollis (Say)	+	sw	Pw
Ctenicera sagiticollis (Eschscholtz)	+	si	Pw
Ctenicera semimetallica (Walker)	+	i	Py,Pl,Pw
Ctenicera suckleyi (Leconte)	+	w	Pl,Pw,Ps,Py
Ctenicera sylvatica (Van Dyke)	+	t	Pl,Pw,Ps
Ctenicera triundulata (Randall)	++	ci,se	Pl,Py,Pw
Ctenicera umbricola (Eschscholtz)	+	s	Pl,Pw,Ps
Ctenicera umbripennis (Leconte)	+	w	Ps,Pl,Pw
Ctenicera vidua Brown	+	se	Py
Ctenicera volitans (Eschscholtz)	+	ci	Pl
Dalopius suspectus Brown	+	se	Pl,Pw
Dalopius tristis Brown	++	t	Pl,Pw,Ps,Py
Denticollis denticornis (Kirby)	+	ce	Pl
Drasterius debilis Leconte	+	n	Pl,Ps
Eanus decoratus (Mannerheim)	+	ni	Pl
Eanus granicollis Van Dyke	+	ni	Pl
Hemicrepidius morio (Leconte)	+	s	Pl,Pw,Py
Hypolithus nocturnus Eschscholtz	+	sw	Pw
Hypolithus sp.	+	ci	Pl
Lacon profusus Candeze	+++	t	Pl,Pw,Ps,Py
Lacon rorulentus Laconte	+	se	Py

Limonius aeger Leconte	+++	t	Pl,Ps,Pw
Limonius crotchi Horn	+	ci	Pl
Limonius maculicollis Motschulsky	+	sw	Pl
Limonius nitidulus Horn	+	t	Ps,Pl,Py,Pw
Limonius pectoralis Leconte	+	ni	Pl
Limonius rufihumeralis Lane	+	se	Py
Limonius venablesi (Wickham)	+	se	Py
Megapenthes caprella Leconte	+	nw	Pl
Megapenthes nigriventris Leconte	+	i,nw	Pl,Py,Pw
Megapenthes stigmosus (Leconte)	++	t (except se)	Pl,Pw,Ps,Py
Megapenthes tartareus (Leconte)	+	se	Py
Negastrius tumescens (Leconte)	+	i,nw	Pl,Py
Sericus brunneus (Leconte)	+	ni,sw	Pl,Pw

Endomychidae
Plant scavengers.

Mycetina idahoensis Fall Sheltering/scavenging.	+	si	Py

Erotylidae: fungus beetles
Associated with fungus on pines.

Triplax californica Leconte	+	ci	Pl

Helodidae: soft-bodied plant beetles
Adults occasionally found sheltering.

Cyphon brevicollis (Leconte)	+	sw	Ps,Pw,Pl
Cyphon concinnus (Leconte)	+	w	Ps,Pl,Pw
Cyphon variablilis (Thunberg)	+	t	Pl,Pw,Ps

Heteroceridae: Mud-loving beetles
Adults found sheltering.

Hetaerius tristriatus Horn	+	se	Py
Isolomalus mancus Casey	+	t	Pl,Pw,Ps

Platysoma coarctatum Leconte	+	se	Py
Platysoma punctigerum Leconte	+	ci,se	Pl,Py

Lampyridae: fireflies
The predaceous larvae may be found under old bark; adults, also predacious, may be found on the tree surface.

Lucidota californica (Motschulsky)	+	w	Pl,Ps
Lucidota corrusca (Linnaeus)	+	ni,se	Pl,Pw

Lathridiidae: minute scavenger beetles
Tiny elongate brown beetles sometimes found in dead bark.

Corticaria dentigera Leconte	+	s	Pl,Pw,Ps
Corticaria serrata (Paykull)	+	sw	Ps
Melanophthalma gibbosa Herbst	+	w	Ps,Pl
Melanophthalma similata Gyllenhal	+	se	Pl

Lucanidae: stag beetles

Platycerus marginalis Casey Sheltering record.	+	se	Pw

Lycidae: net-winged beetles
The predaceous larvae may be found under dead bark. The adults, also predators, may be in the foliage for shelter or food.

Dictyopterus aurora Herbst	+	si	Py
Dictyopterus hamatus (Mannerheim)	+	se	Pw
Dictyopterus simplicipes (Mannerheim)	+	se	Pw

Melandryidae: bark-loving beetles
Elongate dark colored scavenger beetles.

Prothalpia holmbergi (Mannerheim)	+	w	Pl,Ps,Pw
Scotochroa basalis Leconte	++	i	Pl,Pw,Py
Serropalpus substriatus Haldeman	+	ni,se	Pl,Py,Pw
Stenotrachelus aeneus (Fabricius)	+	nw	Pl
Tetratoma concolor Leconte	+	nw	Pl,Ps

Xylita livida Sahlberg	+	nw	Pl,Ps
Melasidae: false click beetles Although the larvae are wood/bark borers, most local records are of sheltering adults.			
Anelastes sp.	+	ni	Pl
Meloidae: blister beetles Usually herbage feeders; adults are sometimes found sheltering in the foliage			
Epicauta sp.	+	ci	Pl
Meloe montanus Leconte	+	si	Pw
Melyridae: soft-winged flower beetles Predators; adults may use pines as shelter.			
Anthocomus antennatus (Hopping)	+	se	Py
Anthocomus auritus (Leconte)	+	ci	Pl
Anthocomus moerens (Leconte)	+	ci	Py
Anthocomus montanus Leconte	+	se	Py
Attalus nigrellus (Leconte)	+	w	Ps,Pl,Pw
Eurelymis atra (Leconte)	+	se	Py
Hoppingiana hudsonica Leconte	+++	t (mostly ni)	Pl,Ps,Py,Pw,Pwb
Hypebaeus bicolor (Leconte)	+	se,si	Py
Listrus plenus Casey	+	sw	Ps,Pw
Malachius aeneus (Linnaeus)	+	si	Py
Malachius mirandis (Leconte)	+	si	Py
Trichochrous sp.	+	nw	Pl
Mordellidae: tumbling flower beetles Small silky beetles often found on flowers.			
Anaspis atrata Champion	+	t	Pl,Py,Ps,Pw
Anaspis rufa Say	+	t	Pl,Pw,Ps

Mordella scutellaris Fabricius	+	sw	Pw
Nitidulidae: sap-feeding beetles **May be feeding or sheltering on the trees.**			
Brachytpterus sp.	+	nw	Ps
Epuraea avara (Randall)	+	se	Pl
Epuraea truncatella Mannerheim	+	w	Pl,Pw,Py,Ps
Glischrochilus sanguinolentus (Olivier)	+	nw	Pw
Glischrochilus vittatus (Say)	+	i	Pl
Nitidula rufipes Linnaeus	+	nw	Pl
Oedemeridae: dampwood borers **Adults sometimes found sheltering.**			
Asclera discolor Leconte	+	si	Py
Calopus angustus Leconte	+	se	Pl
Ditylus sp.	+	svi	Ps
Xanthochroa testacea Horn	+	w	Pl,Pw,Ps
Orthoperidae: **Tiny dark plant scavenger beetles.**			
Sacium sp.	+	nw	Pl
Ostomidae: grain- and bark-gnawing beetles **Scavengers/predators, found on both the tree surface and in bark cavities.**			
Calitys scabra Thunberg **Scavenger/predator.**	+	ci	Pl
Eronyxa pilosulus (Crotch) **Predator/scavenger.**	+	svi	Ps
Ostoma ferruginea (Linaeus)	+	se	Pl
Ostoma pippingskoeldi (Mannerheim)	+	sw	Pl,Ps
Temnochila chlorodia (Mannerheim) **An active predator.**	+	s	Pw,Py

Pedilidae: ant-like beetles **Usually on flowers.**			
Eurygenius campanulatus Leconte	+	ni	Pl
Ptinidae: spider beetles **Scavengers, and sometimes borers, in dead plant material.**			
Ptinus fur Leconte White-marked spider beetle	+	sw	Pw
Ptinus villiger Reitter Hairy spider beetle	+	se	Py
Pythidae: narrow-waisted barkbeetles **Dark colored predators sometimes under dead bark.**			
Lecontia discicollis (Leconte)	+	se	Pw
Myceterus concolor Leconte	+	sw	Ps
Pytho americanus (Kirby)	+	w	Pl,Pw
Pytho planus Herbst	+	sw	Pw
Rhizophagidae: root-eating beetles **Tiny slender dark beetles found under dead bark.**			
Rhizophagus dimidiatus Mannerheim	+	w	Pl,Ps,Pw
Scarabaeidae: June beetles, cockchafers **Adults may feed on foliage and may sometimes cause minor damage; most pine data are of adults. Most larvae live in the soil as root feeders on small plants.**			
Aphodius canadensis Garnett	+	se	Py
Aphodius hamatus Say	+	sw	Pw
Aphodius sp.	+	i	Pl,Py
Cremastocheilus armatus Walker	+	se	Py
Dichelonyx backii Kirby Green rose chafer Sporadic localized needle damage.	+++	t	Pl,Pw,Ps,Py,Pwb

Dichelonyx fulgida Leconte	++	t	Pl,Py,Pw
Dichelonyx truncata Leconte	+	se	Py
Dichelonyx vincina Fall	+	ci,se,si	Pl,Py,Pw
Diplotaxis brevicollis Leconte	+	w	Pl,Ps
Onthophagus nuchicornis (Linnaeus)	+	si	Py
Phyllophaga anxia Leconte	+	nw	Pl
Polyphylla crinita Leconte	+	s	Ps,Pl,Py
Serica sp.	+	ei	Pl,Py

Scolytidae: barkbeetles,
ambrosia beetles,
engraver beetles

These insects utilize a wide range of tree hosts, and include some of the most important forest pests. Typical barkbeetles bore tunnels in the bark, where they lay eggs, and the larvae make extensive galleries between the bark and the wood. The larvae of others, like the ambrosia beetles, bore into the sapwood, and some scolytids tunnel in buds, cones, twigs, etc. Although larval feeding habits may be indicated here, most of the records are of adult retrieval.

Conophthorus monticolae Hopkins A destructive borer in young cones.	+	s	Pw,Pl,Ps
Dendroctonus brevicomis Leconte Western pine beetle A bark borer, typically in overmature trees.	+	e	Py,Pl,Pw
Dendroctonus murrayanae Hopkins Lodgepole pine beetle A bark borer in weakened and overmature trees.	++	ni,nw	Pl,Pw

Dendroctonus ponderosae Hopkins (monticolae Hopkins) Mountain pine beetle The most important pine pest in the province, often of a primary nature; on trees of all sizes, particularly mature growth. The cylindrical near-black beetles, 4-7 mm long, create vertical egg galleries of 8-250 cm that lead to alternate clusters of larval mines. Infested trees usually have conspicuous boring dust and pitch tubes. There is one generation annually, overwintering usually as young larvae, but such an overlap exists that all stages may be found during summer.	++++	t (seldom at immediate coast areas)	Pl,Pw,Py,Ps
Dendroctonus pseudotsugae Hopkins Douglas-fir beetle A bark borer.	+	s	C,Pl,Ps
Dendroctonus punctatus Leconte Allegheny spruce beetle A bark borer.	+	sw	C,Pl
Dendroctonus rufipennis (Kirby) (borealis Hopkins, engelmanni Hopkins, obesus (Mannerheim)) Spruce beetle A bark borer.	+	nw,se	C,Pl
Dendroctonus valens Leconte Red turpentine beetle A bark borer, distinctive by its large size, about 8 mm long, and its red-brown color; usually attacks weakened trees.	+	ci,se,si	Py,Pl
Dolorgus pumilus (Mannerheim) A bark borer.	+	sw	C,S,Pw,Ps
Dryocoetes affaber (Mannerheim) A bark borer, particularly of spruces.	+	ci	C,Pw
Dryocoetes autographus (Ratzeburg) A bark borer, primarily of other conifers.	+	sw	C,Ps,Py
Gnathotrichus retusus (Leconte) A sapwood borer.	+	se	C,Pl,Pw
Gnathotrichus sulcatus (Leconte) A sapwood borer, occasionally significant in other conifers.	+	i	C,Pl,Pw

Hylastes macer Leconte A root collar feeder.	+	sw	Ps,C
Hylurgops porosus (Leconte) A bark borer in the tree base.	+	s	Pl,Py,Pw,Ps
Hylurgops rugipennis (Mannerheim) A bark borer in the tree base.	++	t	Pl,C,Pw,Py
Hylurgops subcostulatus (Mannerheim) A bark borer in the tree base.	+	se,si	Py,Pw
Ips borealis Swaine Sheltering record.	+	se	C,Py,Pw
Ips concinnus (Mannerheim) Sheltering record.	+	ci,se	C,Ps,Py
Ips emarginatus (Leconte) A bark borer in tree stems, occasionally causing mortality; frequently associated with Dendroctonus ponderosae. A 4-spined species.	+	si,sw	Py,Pw
Ips integer (Eichoff) A bark borer in the boles of weakened trees.	+	se	Py
Ips latidens Leconte A bark borer in mature crown growth or in young boles; often associated with Dendroctonus ponderosae. A 3-spined species.	+	s	Pl,Ps,Py,Pw
Ips mexicanus (Hopkins) A bark borer in the stems of weakened trees.	+	i	Pl,Ps
Ips montanus (Eichoff) A bark borer in weakened aged trees.	+	sw	Ps,Pw
Ips perroti Swaine A bark borer.	+	ne	Pl
Ips perturbatus (Eichoff) Sheltering record.	+	i	C,Pl,Ps

Ips pini (Say) Pine engraver A bark borer in both weakened and healthy trees, and capable of causing mortality. The longitudinal egg galleries are the foci of many short lateral larval mines. A 4-spined species.	+++	t	Pl,Ps,Py
Ips plastographus (Leconte) A bark borer in the boles of weakened trees. Usually associated with other bark beetles.	+	se,si	Py
Ips tridens (Mannerheim) Sheltering record.	+	ni	C,Pl,Ps
Orthotomicus caelatus (Eichoff) A bark borer.	+	n,se	C,Pl,Pw
Orthotomicus latidens Leconte A bark borer.	+	nw	Pl
Orthotomicus ornatus Swaine A bark borer.	+	si	Py
Orthotomicus vicinus (Leconte) A bark borer.	+	si	C,Pw
Pityogenes carinulatus (Leconte) A small bark borer in weakened trees; occasionally on young healthy trees.	+	ci,nw,se	Pl,Py,Pw
Pityogenes fossifrons (Leconte) A small bark borer in weakened trees.	+	t (except nw)	Pl,Pw,C,Ps
Pityogenes knechteli Swaine A small bark borer in weakened and/or young trees.	+	e,n	Pl
Pityokteines elegans Swaine A small bark borer.	+	nw	Pl
Pityophthorus absonus Blackman A small bark borer.	+	se	Pwb
Pityophthorus aplanatus Schedl A twig borer.	+	se	Pl

Pityophthorus (Myeloborus) boycei Swaine A small twig borer.	+	n	Pl
Pityophthorus carinulatus Swaine A small twig borer.	+	n	Ps,Pl,C
Pityophthorus confertus Swaine A small twig borer.	+	s	C,Py,Ps,Pl,Pw
Pityophthorus confinis Leconte A small twig borer.	+	ei,se,si	Pl,Py
Pityophthorus consimilis Leconte A small twig borer.	+	ci	Pl,C
Pityophthorus gracilis (Swaine) A small bark borer.	+	nw	Pl
Pityophthorus idoneus Blackman A small bark borer on small branches.	+	se	Py
Pityophthorus murrayanae Blackman A small bark borer.	+	nw	Pl
Pityophthorus nitidulus (Mannerheim) A small bark borer.	+	nw	Pl,C
Pityophthorus nitidus Swaine Sheltering record.	+	nw	C,Pl,Ps
Pityophthorus pseudotsugae Swaine Sheltering record.	+	sw	C,Pl,Ps
Pityophthorus pulchellus tuberculatus Eichoff A small twig borer.	+	t	C,Pl,Ps
Polygraphus rufipennis (Kirby) A barkbeetle.	+	nw,se	C,Pl,Py
Pseudohylesinus grandis Swaine Sheltering record.	+	w	Pl,Ps,Pw
Pseudohylesinus nebulosus (Leconte) A small common bark borer; a secondary pest in the thin bark of damaged weakened trees.	+	w	C,Pl,Ps,Pw
Pseudohylesinus tsugae Swaine Sheltering record.	+	sw	Ps
Scierus sp. A bark borer.	+	ni,se	C,Pl,Pw

Scolytus piceae (Swaine) Sheltering record.	+	nw	Pl
Scolytus unispinosus Leconte Douglas-fir engraver An engraver beetle.	+	sw	C,Ps,Pw
Trypodendron lineatum (Olivier) Striped ambrosia beetle This common insect is the most destructive of the western ambrosia beetles. The stubby cylindrical adults are about 3 mm long, shiny dark brown with two paler stripes along the back. "Ambrosia" refers to the sooty fungus that develops in their tunnels, which extend well into the sapwood. The annual generation usually begins in the spring, on dying trees, e.g. fire-killed, wind-thrown, felled, barkbeetle infested, etc.	+	t	CPl,Ps,Pw,Py

Silphidae: burying beetles
carrion beetles
sexton beetles
Larvae are scavengers on dead organic material, but adults, which fly, may use pine trees as temporary shelter.

Nicrophorus vespilloides Herbst	+	ci	Pl
Pelatines latus (Mannerheim)	+	ni	Pl

Staphylinidae: rove beetles
A large group, many of them predaceous as both larvae and adults. Most occurrences on pine represent shelter records, but in some instances the adults would be feeding on plant material such as pollen or sap, or on other insects.

Acrolocha megarthroides (Fauvel)	+	svi	Ps
Amphichroum maculatum immaculatum Hatch	+	w	Ps
Eusphalerum pothos (Mannerheim)	+	n	Pl,Ps
Pelecomalium testaceum Mannerheim	+	ni	Pl

Quedius fulgidus Horn	+	nw	Ps,Ps
Quedius simplex Hatch	+	nw	Pl
Quedius velox Smetana	+	nw	Pl

Tenebrionidae: darkling beetles
The nocturnal adults are scavengers on vegetation.

Corticeus praetermissus (Fall)	+	nw	Pl
Corticeus substriatus Leconte	+	i	Pl,Py
Eleates explanatus Casey	+	svi	Ps
Eleodes humeralis Leconte	+	si	Py
Helops californicus Mannerheim	+	sw	Pl,Py
Helops pernitens Leconte	+++	ci,sw	Pw,Ps,Pl,Py
Helops regulus Blaisdell	+	sw	Ps
Phellopsis porcata (Leconte)	+	w	Pl,Pw
Platydema oregonense Leconte	+	sw	Ps
Scaphidema aeneolum (Leconte)	+	ni	Pl
Tribolium sp.	+	nw	Pl

Throscidae: pseudo click beetles
Dark colored beetles sometimes found on the trees.

Pactopus horni Leconte	+	sw	Ps

	Occurrence	Distribution	Host
COLLEMBOLA: springtails, snow fleas Small wingless scavengers, usually in damp habitat; often occurring in large numbers.			
Entomobryidae			
Entomobrya triangularis Schott	+	sw	Ps
Orchysellays sp.	+	sw	Ps
DERMAPTERA: earwings Onmivorous feeders, considered as garden pests.			
Forficulidae			
Forficula auricularia Linnaeus European earwig Scavenging/sheltering record.	+	svi	Ps,Py

	Occurrence	Distribution	Host
DIPTERA: flies, mosquitoes, gnats, etc. The larvae are maggots, usually feeding in damp organic material or water.			
Acroceridae: Believed to be parasites of spiders. The following records would be scavenging/shelter.			
Ogcodes melampus Loew	+	se	Pw
Pterodontia flavipes Gray	+	sw	Ps
Pterodontia misella Osten Sacken	+	nw	Pl
Anthomyidae: stable flies, root maggots Shelter records.			
Calythea micropteryx (Thomson)	+	si	Py
Hylemya anthracina (Czerny)	+	ci	Py
Scatophaga frigida Coquillett	+	sw	Ps
Asilidae: robber flies, assassin flies Active, often large, predators. The following records could be shelter/ scavenging.			
Callinicus pollenius (Cole)	+	si	Py
Chirosia idahensis Stein	+	sw	Ps
Dioctria sp	+	se	Py
Heteropogon ludis (Coquillett)	+	se	Pl
Laphria sadales Walker	+	s	Pw,Ps
Bibionidae: March flies Sheltering records.			
Bibio utahensis Hardy	+	sw	Ps
Dilophus caurinus McAtee	+	sw	Ps
Blephariceridae: net-winged midges Aquatic feeders.			
Bibiocephala sp.	+	si	Py

Bombyliidae: bee flies **Probably parasites; sheltering records.**			
Bombylius spp.	+	sw	Ps
Oligodranes sp.	+	sw	Ps
Calliphoridae: flesh flies **Sheltering records.**			
Eucalliphora lilaea (Walker)	+	se	Pl
Pollenia rudis (Fabricius) Cluster fly	+	svi	Ps
Cecidomyidae: gall midges **The tiny larvae, sometimes orange in color, feed in small galls which may be individual or grouped; frequently found on shoots or young twigs.**			
Anaretella defecta (Winnertz) Shoot gall.	+	se	Py
Asynapta hopkinsi Felt Bud/cone feeder.	+	ci	Py
Asynapta keeni (Foote) Associated with weevil galleries.	+	se,w	Pl,Py
Cecidomyia spp. Some of the several known species cause twig/tip distortion/mortality.	++++	t	Pl,Py,Ps,Pw
Contarinia spp. Twig galls.	+	s	Ps,Py,Pl
Lestodiplosis sp. Twig/bark gall.	+	sw	Ps
Rhabdophaga sp. Shoot gall.	+	sw	Pl
Ceratopogonidae: biting midges			
Forcipomyia sp.	+	sw	Ps
Chamaemyidae: **The larvae are usually predaceous.**			
Leucopis sp. Sheltering/predator record.	+	s	Pl

Chironomidae: midges
Sheltering records.

Einfeldia sp.	+	svi	Ps
Glyptotendipes sp.	+	sw	Ps
Micropsectra sp.	+	svi	Ps
Polypedilum sp.	+	si	Py

Chloropidae: frit flies

Chlorops sp. Sheltering record.	+	sw	Ps

Culicidae: mosquitoes
Larvae are aquatic.

Aedes hendersonii triseriatus Cockerall Sheltering record.	+	svi	Ps
Culiseta minnesotae Barr Sheltering record.	+	se	Py

Dolichopidae: long-headed flies
Adults are usually predaceous; larvae have a wide range of habitat, including dying bark.

Campsicnemus sp.	+	ci	Pl
Medetera spp.	+	s	Py,Ps

Empididae: dance flies
Predators.

Drapetis sp.	+	sw	Ps
Hilara sp.	+	svi	Ps
Rhamphomyia sp.	+	sw	Ps

Lauxaniidae
Plant feeders.

Minettia flaveola (Coquillet) Sheltering record.	+	si	Py

Lonchaeidae
The following records are associated with barkbeetle galleries.

Lonchaea johnseyi McAlpine	+	ci	Pl
Lonchaea reidi McAlpine	+	ci	Pl
Lonchaea watsoni Curran	+	sw	Pw

Muscidae: house flies
Sheltering records.

Phaonia harti Malloch	+	sw	Ps,Pl
Schoenomyza litorella (Fallen)	+	svi	Ps

Odiniidae:

Odinia betulae Sabrosky Probably a scavenger.	+	ci	Pl

Otitidae: pictured-wing flies
Plant feeders.

Physiphora demandata (Fabricius) Sheltering record.	+	ci	Py

Rhagionidae: snipe flies

Bolbomyia macgillisi Chilcott Predator.	+	sw	Ps

Sarcophagidae: flesh flies
The following records are of parasites.

Blaesoxipha savoryi (Parker)	+	si	Py
Pseudosarcophaga affinis (Fallen)	+	sw	Ps

Sciaridae: dark-winged fungus gnats

Bradysia sp.	+	svi	Ps
Lycoriella sp.	+	sw	Pw

Simulidae: black flies Adults are blood feeders.			
Simulium venustum Say Sheltering record.	+	sw	Pl
Stratiomyidae: solider flies Adults are blood feeders.			
Stratiomys normula Loew Sheltering record.	+	se	Py
Syrphidae: flower flies Some larvae are predaceous on small insects such as aphids.			
Eristalis compactus Sheltering record.	+	ci	Pl
Eristalis nemorum (Linnaeus) Sheltering record.	+	ci	Pl
Eristalis obscurus Loew Sheltering record.	+	ci	Pl
Metasyrphus lapponicus (Zetterstedt) Predator.	+	se	Pl,Py
Metasyrphus spp. Predator.	+	nw	Pl
Scaeva pyrastri (Linnaeus) Predator.	+	sw	Ps,Pl
Sphaerophoria sp. Predator.	+	sw	Pl
Syrphus ribesii (Linnaeus) Predator.	+	ci	Pl
Tabanidae: horse flies			
Tabanus sp. Sheltering record.	+	ci	Py
Tachinidae: tachinid flies The larvae are parasitic.			
Aplomya sp.	+	si	Py
Chaetophlepsis orbitalis Webber	+	sw	Ps
Chaetophlepsis semiothisae Brooks	+	sw	Pw
Diplostichus lophyri (Townsend)	+	sw	Ps,Pl
Hemisturmia tortricis (Coquillet)	+	sw	Ps
Peleteria sp.	+	si	Py
Periscepsia laevigata (Wulp)	+	svi	Ps

Phyrxe pecosensis (Townsend)	+	sw	Ps
Psalidopteryx nuda Brooks	+	sw	Ps
Spathimeigenia aurifrons Curran	+	si	Py
Tsugaea nox Hall	+	si	Py
Uramya halisidotae Townsend)	+	sw	Pl
Xanthoepalpus bicolor (Williston)	+	nw	Pl
Xanthophyto antennalis Townsend	+	si	Py

Tephritidae
Plant feeders; the following are probably shelter records.

Eutreta pollinosa Curran	+	ci	Py
Paracantha culta (Wiedemann)	+	sw	Ps,Pl
Paroxyna sp.	+	ci	Py

Therevidae: stilleto flies
Predators.

Thereva spp.	+	nw	Pl

Tipulidae: crane flies
Larvae are plant feeders.

Molophus spp. Sheltering records.	+	ci	Pl
Nephrotoma sp. Sheltering record.	+	sw	Pl

	Occurrence	Distribution	Host
EPHEMEROPTERA: Mayflies Aquatics.			
Ephemeridae			
Caenis sp.	+	sw	Pm
HEMIPTERA ("half-wings"): bugs True bugs, with sucking mouthparts. A large group of diverse habit - primarily sap suckers or predators.			
Alydidae: Broad-headed bugs Some are plant feeders.			
Alydus conspersus Montandon Possibly a plant feeder.	+	se	Py
Harmostes reflexulus Say A plant feeder.	+	se	Py
Tollius curtulus (Staol) Likely a plant feeder.	+	se	Py
Anthocoridae: minute pirate bugs Small active predators.			
Anthocoris antevolens White	+	nw	Pl
Elatophilus pullus Kelton & Anderson	+	s	Py
Lyctocoris tuberosus Kelton & Anderson	+	se	Py
Tetraphleps sp.	+	ni	Pl
Aradidae: flat bugs Predators, often found on/under bark.			
Aradus cinnamoneus Panzer	+	sw	Pl,Ps
Aradus funestus Bergroth	+	sw	Pw
Aradus tuberculifer Kirby	+	sw	Pl
Coreidae: squash bugs Plant feeders.			
Coriomeris humilis Uhler	+	se	Pl

Leptoglossus occidentalis Heidemann This pest sucks the juices from developing seeds; significant damage has been noted.	+	s	Pl,Ps

Corimelaenidae: negro bugs
Small, stout, black plant feeders.

Corimelaena anthrocina White	+	si	Pl
Thyreocoris montanus (Van Duzee)	+	si	Py

Lygaeidae: plant bugs, chinch bugs
Plant feeders.

Gastrodes pacificus Provancher Predator.	+	sw	Pl,Ps
Kleidocerys resedae geminatus Say Plant feeders	+	se	Py
Ligyrocoris sp. Predator.	+	se	Pl
Lygaeus bicrucis Say Plant feeder.	+	sw	Pl
Lygaeus reclivatus Linnaeus Plant feeder.	+	si	Py

Miridae: leaf bugs, plant bugs
Most are plant feeders but some are predators.

Ceratocapsus pilosulus Knight Plant feeder.	+	se	Pl
Ceratocapsus punctulatus Reuter Plant feeder.	+	sw	Pl,Ps
Deraeocapsus fraternus Van Duzee Plant feeder.	+	se	Pl
Deraeocoris albigulus Knight Predator.	+	ci	Pl
Deraeocoris brevis Uhler Predator.	+	ci,nw,se	Pw
Deraeocoris ingens Van Duzee Predator.	+	ci,se	Py
Deraeocoris piceicola Knight Predator.	+	nw	Pl,Ps

Dichrooscytus convexifrons Knight Plant feeder.	+	si	Pl
Dichrooscytus suspectus Reuter Plant feeder.	+	s,w	Pl,Pw,Ps
Irbisia nigripes Knight Sheltering record/sap feeder	+	si	Py
Labops hirtus Knight Plant feeder.	+	se	Pl
Largidea davisi Knight Probably predacious.	+	ci	Pl
Largidea rubida Uhler Probably predacious.	+	se	Py
Leptopterna dolobratus (Linnaeus) Meadow plant bug Plant feeder.	+	ci	Pl
Litomiris sp. Plant feeder.	+	se	Py
Lygidea rubecula Uhler Plant feeder.	+	ci	Pl
Lygus approximatus Staol Sheltering record/plant feeder.	+	ci	Pl
Lygus columbiensis (Knight) Sheltering record/plant feeder.	+	t	Ps,Py,Pl
Lygus convexicollis Knight Sheltering record/plant feeder.	+	ni	Pl
Lygus elisus Van Duzee Pale legume bug Sheltering record/plant feeder.	+	w	Pl
Lygus shulli Knight Sheltering record/plant feeder.	+	ni	Pl
Lygus varius Knight Sheltering record/plant feeder.	+	ci	Pl
Megaloceroea debilis Uhler Plant feeder.	+	se	Py
Melanocornis nigricornis Knight Probably a plant feeder.	+	se	Py

Phytocoris commissuralis Van Duzee Probably predacious.	+	se	Pl
Phytocoris conspersipes Reuter Predator.	+	si,w	Pl
Phytocoris neglectus Knight Predator.	+	si	Py
Pilophorus clavatus (Linnaeus) Likely a plant feeder.	+	ni	Pl
Pilophorus uhleri Knight Likely a plant feeder.	+	ci,se	Pl,Pw
Pilophorus vanduzeei Knight Likely a plant feeder.	+	se	Py
Plagiognathus suffuscipennis Knight Plant feeder.	+	nw	Pl
Platylygus grandis Knight Plant feeder.	+	ci,ni,sw	Pl,Py
Platylygus luridus (Reuter) Plant feeder.	+	sw	Pl
Psallus piceicola Knight Plant feeder.	+	sw	Ps,Pl
Stenodema virens (Linnaeus) Possibly a plant feeder.	+	ci	Pl
Xenoborus commisuralis Reuter Plant feeder.	+	se	Pl
Nabidae: damsel bugs Small predators.			
Nabis alternatus Parshley Western damsel bug	+	se	Pl
Nabis ferus (Linnaeus)	+	se	Py
Nabis roseipennis Reuter	+	se	Pl
Nabis rufusculus Reuter	+	w	Pl,Ps
Neididae: stilt bugs Very slender, long legged, brown insects.			
Neides muticus (Say) Predator.	+	s	Pw

Pentatomidae: stink bugs
Large distinctive insects; some are predators, some are sap suckers.

Banasa dimidiata Say Plant feeder.	+	w	Pl,Ps,Pw
Banasa sordida Uhler Plant feeder.	+	nw	Pl
Chlorochroa ligata Say Conchuela Plant feeder.	+	s	Pl,Pw,Py,Ps
Chlorochroa sayi Staol Say stink bug Plant feeder.	+	ci	Py
Chlorochroa uhleri Staol Plant feeder.	+	sw	Ps
Dendrocoris pini Montandon Plant feeder.	+	se	Py
Elasmostethus cruciatus Say Plant feeder.	+	t	Pl,Ps
Elasmostethus interstinctinus Linnaeus Plant feeder.	+	se	Pl
Euschistus variolarius Palisot de Beauvois One-spotted stink bug Plant feeder.	+	s	Py,Pl,Ps
Meadorus lateralis Say Plant feeder.	+	w	Pl,Pw,Ps
Neottiglossa undata (Say) Plant feeder.	+	sw	Pw
Peribalus piceus (Dallas) Predator.	+	ci	Pl
Podisus modestus (Dallas) Predator.	+	nw	Pl
Podisus serieventris Uhler Predator.	+	sw	Pl
Thyanta custator (Fabricius) Plant feeder.	+	sw	Pl

Reduviidae: assassin bugs, pirate bugs
Large active predators.

Rhynocoris americanus Bergroth	+	ci,se	Py
Zelus audax Banks	+	sw	Pl
Zelus socius Uhler	+	se	Py,Pl

Tingididae: lace bugs
Small flat sap-sucking insects,
often white and black.

Corythuca sp.	+	se	Pw

	Occurrence	Distribution	Host
HOMOPTERA: bugs True bugs, with sucking mouthparts; all wings similarly textured; feeders on plant juices.			
Achilidae: lanternflies The following are all feeders on plant juices, although some data may represent shelter records.			
Catonia grisea Van Duzee	+	se	Pl
Catonia nemoralis Van Duzee	+	s	Ps,Pl,Pw
Epiptera brittoni Metcalfe	+	se	Py
Epiptera confusa Beirne	+	s	Pl,Pw,Ps
Epiptera henshawi Van Duzee	+	s	Ps,Py
Epiptera pallida Say	+	ci	Pl
Epiptera septentrionalis (Provancher)	+	w	Pl
Adelgidae (Phylloxeridae): aphids A large common family; many species capable of causing damage to trees and other plants. All data are from feeding records.			
Pineus coloradensis Gillette	+	s,w	Pl,Ps,Pw
Pineus pinifoliae Fitch Pine leaf adelgid	+	se	Pw
Pineus similis Gillette	+	w	Ps,Pl
Pineus sylvestris Annand	+	sw	Pw
Aphididae: aphids, plant lice There are many species on a wide variety of host plants. Most of the following are feeding records.			
Aphis pomi DeGeer Apple aphid Sheltering record.	+	sw	Ps
Asiphum sp.	+	ci	Py

Cinara banksiana Pepper and Tissot	+	se	Py
Cinara braggii Gillette	+	sw	Pl
Cinara brevispinosa (Gillette & Palmer)	++	t	Ps,Pl
Cinara ferrisi Hottes	+	s	Ps,Pw
Cinara medispinosa (Gillette & Palmer)	++	s	Pl,Py,Pw,Pwb
Cinara murrayanae Gillette & Palmer	+	ci,sw	Pl,Pw,Ps
Cinara ponderosae Williams	+	si	Py
Essigella gillettei (Hottes)	+	si	Py
Euceraphis gillettei Davidson	+	se	Py
Mindarus abietinus Koch Balsam twig aphid	+	ci,s	Pl,Ps
Schizolachnus curvispinosus HEK	+	si	Py
Schizolachnus piniradiatae (Davidson)	+	si	Py

Cercopidae: spittlebugs
The nymphs of some species form sheltering "spit" bubbles on plant stems/leaves.

Aphrophora annulata Ball	+	ci	Pl
Aphrophora parallela (Say)	+	ci,se	Pl,Py
Aphrophora permutata Uhler	++	t	Pl,Ps,Py,Pw
Aphrophora signoreti Fitch	+	ci	Pl
Clastoptera obtusa (Say) Alder spittlebug	+	se	Pw
Philaenus spumarius (Linnaeus) Meadow spittlebug	+	sw	Pw,Pl
Philaronia bilineata (Say)	+	nw	Pl

Cicadellidae: leafhoppers
Slender bugs that can move by jumping.

Agalliopsis novellina Oman	+	sw	Pw

Cuerna costalis Fabricius	+	ci	Pl
Cuerna striata Walker	+	ci	Pl
Draeculacephala antica Walker	+	se	Pl
Draeculacephala sp.	+	nw	Pl
Idiocerus alternatus Fitch	+	svi	Ps
Idiocerus populi (Linnaeus)	+	w	Ps,Pl
Oncometopia lateralis Fabricius	+	ni,sw	Pl
Stenocolelidia lineata (Baker)	+	se	Py

Cicadidae: cicadas
Some species oviposit in twigs, causing localized damage, occasionally considered as beneficial to the trees. Larvae feed in the ground. The following are shelter data.

Okanagana bella Davis	+	ci	Py
Okanagana occidentalis (Walker)	+	sw	Ps
Okanagana rimosa (Say)	+	w	Pl,Ps,Pm
Platypedia areolata (Uhler)	+	s	Pl,Ps,Pw

Coccidae: Scale insects, mealybugs
A large diverse family; the adults are usually sessile. Many species cause significant damage.

Chionaspis corni Cooley	+	se	Py
Chionaspis (Phenacaspis) pinifoliae Fitch Pine needle scale This white scale is most common in the ponderosa pine region of the province. It infests both foliage and stems, and can, in some instances, cause mortality.	++++	t	Py,Pl,Ps,C,Pw
Nuculaspis californica Coleman Black Pine-leaf Scale	+	si	Py,Pl

Phenacoccus aceris Signoret	+	sw	Ps
Physokermes sp.	+	si	Py
Puto cupressi (Coleman)	+	ci,si	Py,Pl,C
Cixiidae			
Cixius meridionalis Beirne	+	se	Pl
Membracidae: tree hoppers			
Stictocephala basalis (Walker)	+	ci	Pl

	Occurrence	Distribution	Host
HYMENOPTERA: bees, wasps, ants, sawflies, horntails			
Andrenidae: burrowing bees Sheltering records.			
Andrena erecta Viereck	+	se	Py
Andrena sp.	+	si	Py
Apidae: honeybees, bumblebees The following are sheltering records.			
Bombus spp.	+	se	Py
Nomada lepida Cresson	+	si	Py
Nomada nigrocincta Smith	+	sw	Pl
Argidae: sawflies Usually feeders on deciduous foliage.			
Arge clavicornis (Fabricius) Accidental record.	+	ci,nw	Pl
Braconidae: braconid wasps The following are all parasites, but could also be sheltering/scavenging records.			
Agathis atripes Cresson	+	si	Py
Allodorus crassigaster (Provancher)	+	ni	Pl
Apanteles cingiliae Muesebeck	+	sw	Pw,Ps
Apanteles fumiferanae Viereck	+	sw	Ps
Apanteles spp.	+	ci,se	Pl
Ascogaster sp.	+	ci	Py
Bracon pini (Muesebeck)	+	sw	Ps
Bracon xanthonotus Ashmead	+	sw	Pw
Chelonus acutigaster McComb	+	sw	Pl
Chelonus eximius McComb	+	si	Pl,Py
Chelonus petrovae McComb	+	si	Py

Coeloides sp.	+	se	Py
Ephedrus sp.	+	sw	Py
Habrobracon gelechiae (Ashmead)	+	si	Py
Macrocentrus irridescens French	+	si	Pl
Meteorus hyphantriae Riley	+	sw	Ps
Meteorus trachynotus Viereck	+	sw	Ps
Microgaster peroneae Walley	+	sw	Ps
Rogas sp.	+	sw	Ps,Pw
Zele sp.	+	sw	Pw,Ps

Chalcidae: chalcid wasps
Small parasites.

Spilochalcis albifrons (Walsh)	+	si	Py
Spilochalcis flavopicta (Cresson)	+	se	Py

Chrysididae: cuckoo wasps, gold wasps
Metallic green/blue wasps whose larvae live as parasites in other wasp nests. The following records would be shelter/scavenging.

Chrysis spp.	+	se	Py
Holopyga sp.	+	s	Py,Ps
Omalus aeneus (Fabricius)	+	w	Pl,Ps
Omalus glomeratus (du Buysson)	+	se	Py

Cynipidae: gall wasps

Charips sp. Sheltering record.	+	svi	Ps

Cimbicidae: cimbicid sawflies
Large colorful defoliators, more frequently on deciduous plants.

Cimbex americana Leach Elm sawfly Accidental record.	+	s	D,Pl,Ps

Trichiosoma triangulum Kirby A solitary defoliator.	+	t	D,Pl,Pw
Zaraea americana Cresson A solitary defoliator.	+	ci,se	O,Py,Pl
Diprionidae: sawflies Common defoliators, often occurring in large numbers.			
Diprion sp.	+	sw	O,Pm
Neodiprion abietis (Harris) Balsam fir sawfly A semi-colonial defoliator	+	se,w	C,Pl,Py,Ps
Neodiprion fulviceps (Cresson)	+	se,si	O,Py
Neodiprion nanulus contortae Ross A semi-colonial defoliator.	+	i	Py,Pl,Pw
Neodiprion tsugae Middleton Hemlock sawfly A semi-colonial defoliator.	+	ci,si,sw	C,Ps,Pl,Pw
Elasmidae			
Elasmus sp. Hyperparasite.	+	sw	Ps
Encyrtidae: encyrtid wasps Small metallic parasites.			
Copidosoma deceptor Miller	+	sw	Pw
Microterys claripennis Compere	+	sw	Ps
Eulophidae: eulophid wasps Small parasitic wasps.			
Dicladocerus sp.	+	svi	Ps
Elachertus cacoeciae Howard	+	nw	Pl
Euplectrus mellipes Provancher	+	sw	Ps
Melittobia sp.	+	si	Py
Tetrastichus sp.	+	ci	Pl

Eupelmidae

Eupelmnus sp. Parasite.	+	si	Py

Eurytomidae: eurytomid wasps
Small dark wasps of varying habit.

Eurytoma pissodis Girault Predator/scavenger.	+	se	Pl
Eurytoma sp.	+	si	Py

Formicidae: ants
Although pine trees might be used for shelter, most of the following records represent predator/scavenger data.

Camponotus herculeanus (Linnaeus)	+	ci,s	Pl,Ps,Py
Camponotus laevigatus (Smith)	+	si,sw	Ps,Py
Camponotus pennsylvanicus (DeGeer) Black carpenter ant	+	sw	Ps
Camponotus vicinus Mayr	+	ci,s	Py,Ps
Formica argentea Wheeler	+	si	Pl
Formica fusca Linnaeus Silky ant	+	s	Pl,Ps
Formica haemorrhoidalis Emery	+	si	Py
Formica hewitti Wheeler	+	ci	Pl
Formica integroides Emery	+	si	Py
Formica lasioides Emery	+	sw	Ps
Formica microgyna Wheeler	+	w	Pl
Formica neoclara Emery	+	nw	Pl
Formica neorufibarbis Emery	+	nw	Pl
Formica obscuripes Forel Western thatching ant	+	s	Pl
Formica subnuda Emery	+	s	Pl

Lasius alienus (Foerster) Cornfield ant	+	sw	Ps,Pl
Lasius niger sitkaensis Pergande	+	s	Ps,Pl
Leptothorax nevadensis rudis Wheeler	+	sw	Ps
Myrmica incompleta Provancher	+	si	Pl
Myrmica sp.	+	se	Pl
Tapinoma sessile (Say) Odorous house ant	+	se	Py

Halictidae: sweat bees

Lasioglossum sisymbrii (Cockerell)	+	si	Py

Ichneumonidae: ichneumon wasps
Some of these parasitic wasps have a wide host range. The following data could represent shelter/scavenger records or predator/host preference.

Agrypon (Labrochychus) boreale Ashmead	+	si	Py
Agrypon provancheri (Dalla Torre) (Gravenhorstia alaskensis Ashmead)	+	sw	Ps
Aoplus cestus (Cresson)	+	sw	Pw,Ps
Campoplex crassatus (Viereck)	+	ni	Pl
Coccygomimus (Pimpla) pedalis (Cresson)	+	sw	Ps
Diadegma interruptum pterophorae (Ashmead)	+	s	Py,Pl
Dolichomitus terebrans nubilipennis (Viereck)	+	sw	Ps
Dusona pilosa (Walley)	+	sw	Pw
Enicospilus merdarius (Gravenhorst)	+	s	Py,Ps
Enytus eureka (Ashmead)	+	si	Py,Pl
Enytus sp.	+	sw	Pl
Ethelurgus syrphicola (Ashmead)	+	sw	Ps

Exenterus tsugae Cushman	+	s	Pl,Ps
Exeristes comstockii (Cresson)	+	sw	Ps
Exochus evetriae Rohwer	+	sw	Ps
Gelis (Alegina) apantelis Cushman	+	sw	Pw,Pl
Gelis tenellus (Say)	+	si	Py
Glypta fumiferanae Viereck	+	sw	Ps
Gravenhorstia sp.	+	si	Py
Helictes sp.	+	svi	Ps
Homaspis slossonae Cushman	+	si	Py
Hyposoter fuscitarsis (Viereck)	+	sw	Ps
Idiogramma contortae Townes	+	ci,si	Pl
Itoplectis conquisitor (Say)	+	sw	Ps
Itoplectis quadricingulata (Provancher)	+	s	Ps,Pl
Lamachus angularius (Davis)	+	sw	Pw,Ps
Lamachus lophyri (Ashmead)	+	sw	Py
Lissonota sp.	+	svi	Ps
Mesochorus spp.	+	sw	Ps
Nemeretis sp.	+	si	Py
Orsebius tsugae (Cushman)	+	nw	Ps
Phaeogenes maculicornis hariolus (Cresson)	+	sw	Ps
Phytodietus fumiferanae Rohwer	+	se	Pl
Protichneumon effigies Heinrich	+	si	Py
Scambus aplopappi (Ashmead)	+	si	Py
Scambus hispae (Harris)	+	sw	Pl
Scambus transgressus (Holmgren)	+	sw	Ps

Megachilidae: leaf cutting bees

Osmia lignaria propinqua Cresson Sheltering record.	+	s	Pl,Ps

Pamphiliidae: web-spinning sawflies
The relatively large defoliating larvae are distinctive by their legless appearance. All but one of the following species are usually solitary defoliators.

Acantholyda atrata (Cresson)	+	w	C,Pl,Pw
Acantholyda balanata (MacGillivray)	+	t	C,Py,Pl
Acantholyda brunnicans (Norton)	++	ci,si,sw	Py,Ps,Pl
Acantholyda crocina Middlekauff	+	se	Pl,Py
Acantholyda maculiventris (Norton)	+	se,w	C,Py,Pl,Pw
Acantholyda ruficeps (Harrington)	+	ci	Py
Acantholyda verticalis (Cresson)	++	s	Py,Pl,Ps,Pw
Cephalcia californica Middlekauff Usually a colonial web/feeder.	+	ci,s	Pl,Ps,Pw
Cephalcia provancheri (Huard)	+	s	Py,Pl,C

Platygasteridae
Small parasitic wasps.

Platygaster sp.	+	sw	Pl

Pompilidae: spider wasps

Pompilus scelestus Cresson Predator.	+	ci	Pl

Pteromalidae: pteromalid wasps
Small parasitic wasps.

Amblymerus sp.	+	sw	Ps
Capella rufiventris (Girault)	+	sw	Py
Catolaccus aeneoviridis (Girault)	+	se	Py
Chlorocytus sp.	+	sw	Ps
Euneura lachni (Ashmead)	+	si	Py,Pl

Pteromalus sp.	+	si	Py
Mesopolobus verditer (Norton)	+	svi	Ps
Rhopalicus pulchripennis (Crawford)	+	sw	Ps

Siricidae: horntail wasps
Large robust insects; the larvae bore in wood at wound areas.

Sirex cyaneus Fabricius Blue horntail Sheltering record.	+	w	Pl,Ps
Sirex juvencus californicus (Ashmead) A wood borer.	+	ci,se	Pl
Urocerus albicornis (Fabricius) A wood borer.	+	s	C,Pl,Pw
Urocerus californicus Norton A wood borer.	+	sw	C,Py
Urocerus gigas flavicornis (Fabricius) A wood borer.	+	w	C,Pl,Ps

Sphecidae: thread-waisted wasps, mud wasps

Philanthus zebratus Cresson Predator/sheltering record.	+	se	Py

Tenthredinidae: sawflies
A large family with many different host plants and feeding habits.

Amauronematus fallax (Lepeletier) Usually a colonial defoliator.	+	ci	Pl
Amestegia sp. Accidental record.	+	ci	O,Pl
Anoplonyx laricivorus (Rohwer & Middleton) A semi-colonial defoliator.	+	se,si	C,Pl,Py
Anoplonyx luteipes (Cresson) A solitary defoliator.	+	ci	Pl
Anoplonyx occidens Ross A semi-colonial defoliator.	+	se	C,Pl,Pw
Blennocampa sp. A solitary defoliator.	+	se	O,Pw

Endelomyia aethiops (Fabricius) Roseslug Accidental record.	+	sw	O,Pl
Hemichroa crocea (Geoffroy) Striped alder sawfly Accidental record.	+	sw	D,Pw
Nematus oligospilus Foerster Accidental record.	+	se	D,Pl
Pachynematus sp. Accidental record.	+	si	Py
Pikonema alaskensis (Rohwer) Yellow-headed spruce sawfly A solitary defoliator.	+	t	C,Pl
Pikonema dimmockii (Cresson) Green-headed spruce sawfly A solitary defoliator.	+	w	C,Pl,Pw
Pristiphora bivittata (Norton) A solitary defoliator.	+	ci	C,Pl
Pristiphora erichsonii (Hartig) Larch sawfly A colonial defoliator.	+	ci,se	C,Pl
Pristiphora leechi Wong & Ross A colonial defoliator.	+	se	C,Py
Rhogogaster viridis (Linnaeus) A solitary defoliator.	+	ci	D,Pl
Strongylogaster distans Norton Sheltering record.	+	sw	Pw
Strongylogaster tibialis Cresson Sheltering record.	+	sw	Pl
Tenthredo xantha Norton Sheltering record.	+	se	Pl
Tiphiidae: parasitic wasps			
Tiphia bakeri Allen Sheltering record.	+	sw	Pl
Trichogrammatidae			
Trichogramma minutum Riley Minute egg parasite Egg parasite.	+	si	Py

Vespidae: yellow-jackets, hornets, paper wasps
Predators/scavengers

Polistes fuscatus aurifer Saussure Golden paper wasp	+	si	Py
Vespula acadica (Sladen)	+	svi	Ps
Vespula maculata (Linnaeus)	+	si	Py
Vespula spp.	+	s	Pl,Ps,Py

Xyelidae: flower-feeding sawflies
The small yellow larvae are commonly found feeding in male flowers.

Xyela cheloma Burdick	+	se	Py,C
Xyela obscura (Strobl) (pini Rohwer)	+	s	Py,Ps

ISOPTERA: termites
Subterranean feeders.

Rhinotermitidae

Reticulitermes hesperus Banks Western subterranean termite Sheltering record.	+	ci	Py

	Occurrence	Distribution	Host
LEPIDOPTERA: moths/butterflies **All host data are feeding records, unless otherwise noted.**			
Agaristidae: forester moths			
Alypia langtoni Couper accidental record	+	nw	D,Pl
Arctiidae: tiger moths, woolly bears **The hairy bristled larvae of these relatively large moths commonly feed on herbage or deciduous plants; they are sometimes vividly colored.**			
Aemelia roseata Walker A solitary defoliator.	+	sw	C,Ps
Estigmene acrea Drury Salt marsh caterpillar A herbage defoliator.	+	se	O,Py
Halisidota argentata Packard Silver spotted tiger moth A colonial defoliator.	++	w	C,Pl,Ps,Pw,Py
Leptarctia californiae Walker A solitary defoliator.	+	sw	D,Ps
Lexis bicolor Grote Usually a lichen feeder.	+++	i	Pl,Py,C,Pw
Parasemia yarrowii Stretch Sheltering record.	+	ci	D,Pl
Pyrrharctia isabella J.E. Smith Banded woollybear Sheltering record.	+	ci	D,Pl
Blastobasidae: small webbing caterpillars			
Holcocera immaculella McDunnough A solitary leaf binder.	+	t	C,Pl,Ps,Py

Drepanidae: hooktip moths

Drepana arcuata Walker A solitary defoliator	+	i,sw	D,Pw,Ps
Drepana bilineata Packard A solitary defoliator.	+	t	D,Pl

Ethmidae

Ethmia coloradella Walsingham A needle miner.	+	i	Pl,Py,Pw

Gelechiidae: small leaf miners
Many species are feeders on herbage or deciduous plants.

Chionodes continuella (Zeller) A needle-binder.	++	t	C,Ps,Pl,Py
Chinonodes retiniella (Barnes & Busck) A needle-tier/miner. The brown larvae bind the needles into long tubes; localized defoliation can occur.	+++	si	Py,C,Pw
Coleotechnites atrupictella (Dietz) A needle-miner/defoliator.	++	se,w	C,Py,Ps,Pl,Pw
Coleotechnites florae (Freeman) A needle miner.	+	se	Pl
Coleotechnites starki (Freeman) A needle miner. The small green larvae usually require 2 years to mature, and each caterpillar mines at least 3 needles. Damage is usually limited to discolored foliage, but prolonged infestation can weaken the tree significantly.	++++	se	Pl,Py
Compsolechia niveopulvella Chambers Sometimes a mistletoe feeder.	+	nw	D,Pl
Filatima demissae Kiefer A bud miner.	+	i	C,Pl,Py,Pw
Pulicalvaria canusella (Freeman) A needle miner.	++	i	Pl

Geometridae: looper, inchworms
A larva of this large common family is characterized by a long slender body that is usually smooth, with only one pair abdominal prolegs. Unless otherwise noted, all the following species are solitary defoliators.

Aethalura anticaria Walker	+	se	Pw
Anagoga occiduaria Walker	+	si	O,Pl,Pw
Anavitrinella pampinaria Guenee	+	i	C,Pl,Py,Pw
Anthelia hyperborea Hulst	++	w	C,Ps,Pw
Biston cognataria (Guenee)	+	t	D,Pl,Pw,Py
Cabera sp. Accidental record.	+	se	D,Pl
Campaea perlata Guenee	+	t	O,Pl,Pw,Py
Caripeta aequaliaria Grote	++	t	Pl,Py,Ps,Pw,C
Caripeta angustiorata Walker	++	t	Pl,C,Ps,Py,Pw
Caripeta divisata (Walker) This medium-sized grey and yellow looper is consistently found on other conifers.	++	t	C,Pw,Py
Cyclophora pendulinaria griseor(McDunnough)	+	t	C,Pl,Pw,Ps
Ectropis crepuscularia Schiffermueller Populations occasionally reach infestation proportion on other conifers.	++	t	C,Pl,Pw,Py
Enypia griseata Blackmore	++	i	C,Pl,Py
Enypia packardata Taylor	++	sw	C,Ps,Pw
Enypia venata Grote	++	s	C,Pw,Ps,Py
Epirrhanthis substriataria (Hulst)	+	se	D,Pl,Pw
Epirrita autumnata (Guenee) Occasionally found in large numbers on other conifers.	+	t	C,Pl
Epirrita pulchraria (Taylor)	++	w	C,Ps,Pw

Erannis vancouverensis Hulst Sometimes found in large numbers on deciduous hosts.	+	t	D,Py,Pw
Euchlaena tigrinaria sirenaria Strecker Sheltering record.	+	se	O,Pl
Euchlaena vinulentaria Grote & Robinson	+	i	O,Pl
Eufidonia notataria Walker	+	i	Pl,Pw
Eupithecia albicapitata Packard	+	nw	C,Pl
Eupithecia annulata Hulst	++	t	C,Ps,Pl,Pw,Py
Eupithecia bryanti Taylor	+	se	Py
Eupithecia filmata Pearsall	+	nw	Pl,C,Pw
Eupithecia fletcherata Taylor	+	se	D,Pw
Eupithecia harrisonata MacKay	+	w	C,Ps,Pw
Eupithecia longipalpata Packard	+	w	C,Ps
Eupithecia luteata bifasciata Dyar	++	t	C,Pl,Ps,Pw
Eupithecia maestosa harlequinaria Dyar	+	sw	D,Ps
Eupithecia niphadophilata Dyar	+	w	C,Ps
Eupithecia ornata Hulst	++	s	Pl,Ps,Pw,Py
Eupithecia palpata Packard	++	n,se	C,Pl,Ps,Pw
Eupithecia placidata Taylor	+	i	C,Pl
Eupithecia sobrinata Hubner	+	se	C,Pw
Eupithecia transcanadata MacKay	+	nw,se	C,Ps,Pw,Py
Gabriola dyari Taylor	++	t	C,Pw,Py,Pl
Glena nigricaria Barnes & McDunnough	+++	i	Py,C
Hesperumia sulphuraria ochreata Packard	+	se	D,Pw,Pl
Hydriomena albimontanata McDunnough	+	i	C,Pl,Py
Hydriomena californiata Packard	+	w	C,Ps
Hydriomena irata Swett	++	ni	C,D,Ps,Pl

Hydriomena speciosata Packard	++	sw	C,Ps,Pw
Hypagyrtis nubecularia (Guenee)	++	t	C,Pl,D,Pw
Hypagyrtis piniata (Packard)	++	t	C,Pl,Py,Pw,Ps
Iridopsis emasculata (Dyar)	+	sw	Ps,C,Pw
Isturgia truncataria Walker Sheltering record.	+	se	O,Pl
Itame loricaria Everson Accidental record.	+	ni	D,Pl
Itame quadrilinearia Packard Accidental record.	+	se	D,Pl
Lambdina fiscellaria lugubrosa (Hulst) Western hemlock looper	++	t	C,Pl,Ps,D,Pw,Py
Lygris destinata Moeschler	+	s	D,Ps,Pl,Pw
Lygris xylina Hulst	+	t	D,Pw
Melanolophia imitata Walker	++	t	C,Pl,Py,Pw,Ps
Metanema inatomaria Guenee	+	i	C,Pl
Nematocampa filamentaria Guenee Filament bearer	+	t	C,Pl,Pw,Py
Nemoria sp. Accidental record.	+	se	D,Pl
Neoalcis californiaria Packard	+	t	C,Pw,Py
Nepytia freemani Munroe Although an important pest of other conifers, this looper seldom damages pines.	++	se	C,Pl,Pw,Py
Nepytia phantasmaria Strecker Phantom hemlock looper Occasionally a problem on other conifers.	+	sw	C,Ps,Pw,Py
Nepytia umbrosaria nigrovenaria Packard	+	sw	C,Ps,Pw
Nyctobia limitaria Walker	++	t	C,Ps,Pl,Pw,Py
Operophtera bruceata Hulst Bruce spanworm Sheltering record.	+	ci	D,Pl

Pero behrensarius Packard	++	s	C,Pl,Ps,Pw,Py
Pero mizon Rindge	+	t	C,Pl,Pw
Pero morrisonarius Henry Edwards	+	t	C,Ps,Pl
Phaeoura magnificans (Dyar)	+	se	Py
Phaeoura mexicanaria (Grote)	+	se	Py
Phengommataea edwardsata Hulst	++	s	C,Ps,Py,Pw
Plemyria georgii Hulst	+	t	D,Pl
Protoboarmia porcelaria indicataria Walker	++	t	C,Ps,Pl,Pw,Py
Rheumaptera hastata (Linnaeus)	+	t	D,Pl
Semiothisa adonis Barnes & McDunnough	+++	t	Py,Pl,Pw,Ps
Semiothisa perplexa McDunnough	++	se,w	C,Ps,Pw,Py
Semiothisa setonana McDunnough	++	t	C,Pl
Semiothisa sexmaculata Packard	++	si	C,Pl,Pw,Py
Semiothisa signaria unipunctaria Wright	+++	t	C,Pl,Ps,Py,Pw
Semiothisa triviata Barnes & McDunnough	+	ci	C,Py
Stenoporpia albescens Hulst	+	s	C,Ps,Pw,Py
Stenoporpia excelsaria Strecker	+	i	D,Py,Pl,Pw
Stenoporpia satisfacta Barnes & McDunnough	+	t	C,Py,Pw
Synaxis pallulata Hulst	+	t	Pl,C,D,Pw
Thera sp.	+	i	C,Pl
Venusia pearsalli Dyar	+	nw	D,Pl
Xystrota rubromarginaria Packard	+	se	O,Py
Zenophleps lignicolorata Packard	+	sw	O,Ps

Gracillariidae: leaf blotch miners

Phyllocnistis populiella Chambers Sheltering record.	+	ci	Pl

Lasiocampidae: tent caterpillars, lappet moths

Malacosoma californicum pluviale (Dyar) Western tent caterpillar A colonial defoliator.	+	t	D,Pw,Py
Malacosoma disstria Hubner Forest tent caterpillar A colonial defoliator.	+	t	D,Pw,Py
Tolype dayi Blackmore A solitary defoliator.	++	s	C,Py,Ps,Pw

Lycaenidae: small butterflies - hairstreaks, coppers, meadow-blues
Larvae are very plump, with inconspicuous head and legs; often appearing fuzzy green. The following are all solitary defoliators.

Incisalia eryphon (Boisduval)	++	i,sw	C,Pl,Pw,Ps,Py
Incisalia nelsoni (Boisduval)	++	i	C,Pl
Incisalia spinetorum Hewett	++	i	Py,C

Lymantriidae: tussock moths
The larvae are characterized by a "tooth brush" of pale hairs on top of the back.

Dasychira grisefacta (Dyar) A solitary defoliator.	++	t	C,Pl,Pw,Py
Dasychira styx (Barnes & McDunnough) A solitary defoliator.	+	sw	C,Pw
Orgyia antiqua badia (Henry Edwards) Rusty tussock moth A solitary defoliator. Occasionally this insect reaches infestation proportions, usually on hosts other than pines.	+	t	C,D,Pl,Ps,Pw,Py

Orgyia pseudotsugata (McDunnough) Douglas-fir tussock moth A solitary defoliator. Defoliation of pine can result when the more usual host plants are in short supply.	++	s	C,Py,Pl

Lyonetiidae: leaf miners

Lyonetia saliciella Busck Sheltering record.	+	se	D,Pl

Noctuidae: cutworms

These stout medium-sized insects have a wide range of habit, and occur as pests primarily on agricultural crops or herbage. Larvae are usually smooth-bodied, with four pairs of abdominal prolegs. The following species are all solitary defoliators.

Ababgrotis mirabilis Grote	+	si	Py
Achytonix praeacuta Smith	++	t	C,Ps,Py,Pw,Pl
Acronicta grisea Walker	+	t	O,Pl
Acronicta impleta Walker	+	se	O,Pw
Actebia fennica (Tauscher) Black army cutworm A near-ground defoliator, often a herbage/nursery pest.	+	i	C,Pl
Amphipyra pyramidoides Guenee	+	se	D,Py
Andropolia aedon Grote Sheltering record.	+	ci	D,Pl
Anomogyna dilucida Morrison	+	i	C,Pl
Anomogyna elimata Guenee	+	i	Pl,C,Py
Anomogyna mustelina Smith	++	t	C,Pw,Py
Diarsia calgary Smith	+	ne	Pl
Enargia decolor Walker Accidental record.	+	ci	D,Pl

Eurois occulta Linnaeus	+	t	O,Pl
Euxoa ochrogaster Guenee Red-backed cutworm	+	nw	D,Pw,Py
Feralia comstocki Grote	++	t	C,Pl,Ps,Pw
Feralia deceptiva McDunnough	+	i	C,Pl,Pw,Py
Feralia jocosa Guenee	++	t	C,Ps,Pw,Pl,Py
Graphiphora haruspica Grote	+	i	O,Pl
Ipimorpha pleonectusa (Grote) Sheltering record.	+	ci	D,Pl
Lithophane ferrealis (Grote)	++	sw	C,Ps
Lithophane georgii Grote	+	si	D,Py
Lithophane innominata Smith	+	se	O,Pl
Lithophane lepida (Lintner)	++	s	Pl,Py,Ps,Pw
Lithophane thaxteri Grote	+	se	D,Pl
Orthosia hibisci Guenee	+	w	D,Ps
Orthosia revicta Morrison	+	se	O,Pw
Orthosia transparens Grote	+	sw	C,D,Ps
Palthis angulalis Hubner	++	sw	C,D,Ps,Pl,Pw
Panthea portlandia Grote	++	t	Pl,Pw,C,Ps,Py
Peridroma saucia Hubner Variegated cutworm	+	t	D,C,Pl
Polia adjuncta Boisduval	+	se	Pw
Polia imbrifera Guenee	+	i	C,Pl
Polia lutra glaucopis Hampton	+	t	C,D,Pl,Ps
Polia pulverulenta Smith	+	w	D,Pl
Raphia frater Grote Sheltering record.	+	ci	D,Pl
Scoliopteryx libatrix Linnaeus	+	ci,ni	D,Pl

Synedoida sp.	+	t	D,Pl
Syngrapha alias interalia Ottolengui	+	t	C,Pl,Pw
Syngrapha celsa Henry Edwards	+	t	C,Pw
Syngrapha epigaea Grote	+	t	C,Pl
Syngrapha selecta Walker	++	t	C,Pl,Ps,Pw
Xylena sp. Sheltering record.	+	ci	D,Pl
Xylomyges candida Smith	+	sw	C,Ps,Pl
Xylomyges crucialis Harvey	+	t	D,Pl,Py
Xylomyges curialis Grote	+	se	C,Py
Xylomyges dolosa Grote	+	se	O,Py
Xylomyges hiemalis Grote	+	sw	C,Ps
Xylomyges perlubens Grote	+	sw	C,Ps
Zale duplicata largera Smith	+++	t	Pl,Ps,Pw,Py

Nolidae

Celama minna Butler A solitary defoliator.	+	sw	O,Ps

Notodontidae: prominents

Gluphisia septentrionalis Walker Accidental record.	+	ci	D,Pl
Ichthyura apicalis Walker Accidental record.	+	nw	D,Pl
Schizura sp. Accidental record.	+	ci	D,Pl

Nymphalidae: brush-footed butterflies

Limenitis lorquini burrisonii Maynard
Lorquin's admiral + se D,Pl
Accidental record.

Nymphalis antiopa Linnaeus + ci D,Pl
Mourning cloak butterfly
Sheltering record.

Nymphalis j-album Boisduval & Leconte
Sheltering record. + ci D,Pl

Oecophoridae

Agonopterix costosa Haworth + sw O,Ps
A leaf-binder.

Olethreutidae: bud moths
This large group of small insects includes many species of diverse feeding habit.

Aphania spinulana McDunnough + se D,Pl
Sheltering record.

Aphania tertiana McDunnough + t D,Ps
A solitary leaf roller.

Epinotia emarginana Walsingham + ci D,Py
A solitary leaf roller.

Epinotia hopkinsana (Kearfott) +++ sw C,Ps,Pl,Py
A bud borer.
This insect mines needles when it is small; on pines it is often confused with the European pine shoot moth.

Epinotia subplicana Walsingham + svi Ps
A needle miner.

Eucosma ponderosa Powell ++ i Py
A cone/bud borer.

Eucosma perfuscana Heinrich + si Pl
A borer.

Eucosma rescissoriana Heinrich ++ i Pl,Pw,Py
A cone/bud borer.
Occasionally causes localized damage.

Eucosma sonomana Kearfott ++ s Py,Pl,Ps
Western pine shoot borer
A shoot borer.
The small white larva of this localized pest bores down the central stem of an expanding shoot, which flags and later becomes brown.

Griselda radicana Walsingham	++	t	C,Pl,Py
Laspeyresia candana Forbes A solitary leaf roller.	+	si	C,Py
Laspeyresia miscitata Henrich A cone borer.	++	i	Py
Laspeyresia piperana Kearfott A cone borer.	++	i	Py
Laspeyresia rana Forbes A bark borer.	+	i	Pl,Pw
Laspeyresia resinosae Freeman A bark borer.	+	i	Py
Melissopus latiferreanus Walsingham Filbertworm A seed borer.	+	t	D,Pl
Olethreutes sp. A needle-webber.	+	t	C,Pl
Petrova albicapitana Busck Northern pitch twig moth A bark feeder. This insect may be common in localized areas. The grey-brown larvae create large pitch nodules on the small branches, and their feeding can stunt or kill the growth.	+++	t	Pl,Py,Ps
Petrova metallica Busck A bark feeder. Less common than P. albicapitana; more frequent on ponderosa pine.	++	s	Py,Pl,Ps
Rhyacionia buoliana Schiffermueller European pine shoot moth This insect is an important pine pest, but mostly of exotic species, and transplant trees or those under managed environment. The small dark brown larvae overwinter in the buds and later destroy them.	++	s	C,Ps,Py,Pl,Pw
Rhyacionia busckana Heinrich A tip defoliator.	++	si	Py
Rhyacionia subcervinana Walsingham A needle miner.	++	si	Py

Rhyacionia zozana (Kearfott) A bud borer.	+	si	Py
Sciaphila duplex Walsingham Sheltering record.	+	sw	Ps
Zeiraphera destitutana (Walker) A bud borer/leaf roller.	++	nw	C,Ps,Pl
Zeiraphera fortunana (Kearfott) A bud miner/defoliator.	+	se	Pl,C
Zeiraphera pacifica Freeman A bud miner/defoliator.	++	w	C,Ps

Papilionidae: swallowtail butterflies

Papilio sp. Accidental record.	+	sw	D,Ps

Phalonidae

Phalonia sp. A solitary defoliator.	+	sw	O,Ps

Pieridae: butterflies - sulphurs, whites

Neophasia menapia Felder & Felder Pine butterfly A colonial defoliator. Although large numbers of these white butterflies are conspicuous in late summer, the larvae are only occasionally found in infestation proportions in B.C. Caterpillers are green with yellow-white stripes.	+++	t	Py,C,Pl,Ps,Pw

Pyralidae: small borers in stems, seeds, cones, fruits, bark, etc.

Dasypyga alternosquamella Ragonot A small defoliator usually associated with mistletoe.	++	w	Pw
Dioryctria abietivorella (Grote) The large brown larvae are shoot borers of diverse habit, sometimes in cones and rusts.	+++	t	C,Pl,Ps,Pw
Dioryctria auranticella (Grote) The large grey larvae are cone borers and sometimes serious seed pests.	+++	si	Py

Dioryctria cambiicola (Dyer) A shoot borer, frequently in an untidy pitch mass at a twig tip.	+++	s	Py,Pl,Ps
Dioryctria contortella Mutuura & Munroe A stem borer, usually in (rust) cankers.	++	si	Pl,Py
Dioryctria pentictonella Mutuura, Munroe & Ross A borer in buds and twigs.	+++	s	Pl,Py,Ps
Dioryctria reniculelloides Mutuura & Munroe Spruce coneworm A twig and cone borer.	++	s	C,Py
Dioryctria rossi Munroe A cone borer.	+	si	Py
Myelopsis coniella Ragonot A solitary feeder.	+	se	D,Pw
Pyrausta tuolumnalis Barnes & McDunnough A leaf-binder.	+	i	C,Pl

Sesiidae: clearwing moths; stem borers

Albuna pyramidalis Walker Sheltering record.	+	nw	O,Pl
Synanthedon sequoiae (Vespamima)(Henry Edwards) Sequoia pitch moth The white larvae bore in the bark/cambium and create conspicuous masses of pitch, often at branch axils; branches are weakened.	+++	s	Ps,Py,Pl, Pw,Pwb,C
Thamnosphecia americana Beutenmueller Sheltering record.	+	si	Pl

Tortricidae: leaf-rollers
A large group of small drab insects, many species considered pests because of their boring, mining and defoliating habits.

Acleris gloverana Walsingham Western black-headed budworm a budworm/defoliator. This noted pest is common over large areas, but prefer other coniferous hosts such as hemlock, spruces, Douglas-fir, etc.	++	t	C,Ps,Pl,Py,Pw

Acleris logiana (Linnaeus)	+	se	D,Pl
Accidental record.			
Archippus albertus (McDunnough)	+	i	C,Pl
A solitary leaf-roller/defoliator.			
Archippus packardianus (Fernald)	++	t	C,Pl,Ps
A solitary defoliator.			
Archips argyrospilus Walker	+	t	D,Py,Pw
Fruit tree leaf-roller			
A leaf-roller.			
Archips gogana Kearfott	+	n,w	C,Pl
A leaf-roller.			
Archips rosanus Linnaeus	+	sw	O,Ps,Py
A solitary leaf-roller.			
Argyrotaenia citrana (Fernald)	++	ci,sw	D,Ps,Pl,Py,Pw
Orange tortrix			
A leaf-roller.			
Argyrotaenia dorsalana (Dyar)	+	s	O,Py
A solitary leaf-roller.			
Argyrotaenia occultana Freeman	++	t	C,Pl,Ps,Py
A solitary defoliator.			
Argyrotaenia tabulana Freeman	+++	t	C,Pl,Pw,Ps
A leaf-roller.			
The small green larvae begin as needle miners, and then bind the needles into irregular tube shelters; localized defoliation occasionally results.			
Argyrotaenia velutinana Walker	+	se	C,Pl,Py
Red-banded leaf-roller.			
A solitary leaf-roller.			
Batodes angustiorana Haworth	+	sw	O,Ps,Py
A bud/leaf miner.			
Choristoneura fumiferana (Clemens)	+++	ne	C,Pl
Eastern spruce budworm			
A defoliating leaf roller.			
The spotted brown larvae are important defoliators on other conifers.			

Choristoneura biennis Freeman A defoliating leaf-roller.	++	e,n	C,L
Choristoneura lambertiana (Busck) A defoliating leaf-roller.	+	i	Pl,Py
Choristoneura occidentalis Freeman Western spruce budworm A defoliating leaf-roller. This major pest of coniferous forests is more commonly found on Douglas-fir, hemlock, and true firs. The dark brown larvae are distinctive by their pale setal bases: 2 conspicuous pairs on top of each body segment.	++++	sw	C,Pl,Ps,Pw,Py
Choristoneura orae Freeman A defoliating leaf-roller.	++	nw	C,Ps,Pl
Choristoneura rosaceana (Harrison) Oblique-banded leaf-roller	+	t	D,Pl
Clepsis persicana (Fitch) A leaf-roller.	+	t	Pl,Ps,Py
Tortrix sp. A leaf-roller.	+	t	C,Pl

Yponomeutidae: leaf/twig miners

Argyresthia flexilis Freeman A needle miner.	+	se	Pf
Argyresthia spp. Needle miners.	++	i	O,Pl
Ocnerostoma piniariella Zeller A needle miner. Occasionally a pest in very localized areas.	++	sw	Ps,Pw
Zelleria haimbachi Busck Pine needle sheath-miner A needle miner/defoliator. These slender insects can cause localized defoliation, twig damage and occasional tree mortality. The thin brown larvae overwinter as needle miners, then defoliate at sheath level from silk tunnels.	++++	t	Pl,Py,Ps

	Occurrence	Distribution	Host
MEGALOPTERA: fishflies Aquatics.			
Corydalidae			
Protochauliodes spenceri Munroe Sheltering reocord.	+	sw	Ps
NEUROPTERA: lacewings Larvae and adults are active predators on small insects.			
Chrysopidae: green lacewings			
Chrysopa oculata Say Goldeneye lacewing	+	ni	Pl
Chrysopa spp.	+	ci,s	Py,Pl,Ps,Pw
Hemerobiidae: brown lacewings			
Hemerobius dorsatus Banks	+	ni	Pl
Hemerobius spp.	+	s	Py,Pl,Ps
Kimminsia sp.	+	se	Pl
Polystoechotidae: giant lacewings			
Polystoechotes punctatus (Fabricius)	+	si	Py
Raphidiidae: snakeflies			
Agulla adnixa Hagen	+	s	Pm,Pl,Ps,Py
Agulla assimilis Albarda	+	s	Py,Pl,Ps,Pw

	Occurrence	Distribution	Host
ODONATA: dragonflies, damselflies The fast-flying adults are predaceous.			
Agrionidae: damselflies			
Agrion sp.	+	ci	Py
Aeschnidae: dragonflies			
Aeschna sp.	+	sw	Ps
Coenagrionidae: damselflies			
Enallagma boreale (Selys)	+	si	Pl
ORTHOPTERA: grasshoppers, crickets			
Acrididae: grasshoppers Herbage feeders.			
Acrydium brunneri (Bolivar)	+	svi	Ps
Tettigoniidae: camel crickets			
Ceuthophilus sp.	+	si	Py
Cirotettix sp.	+	sw	Pm
Cyphoderris monstrosa Uhler	+	sw	Ps
Neduba sp.	+	si	Py
Scudderia sp.	+	si	py
Stenopelmatus longispina Brunner	+	sw	Ps
Gryllidae: field crickets			
Gryllus sp.	+	sw	Ps

	Occurrence	Distribution	Host
PLECOPTERA: stoneflies			
Aquatic insects; sheltering records.			
Perlidae			
Acroneuria sp.	+	si	Py
Alloperla coloradensis (Banks)	+	si	Py
Isogenoides frontalis colubrinus Hagen	+	si	Py
Isoperla ebria Hagen	+	sw	Pw
Nemouridae			
Nemouria sp.	+	se	Pw
PSOCOPTERA: bark lice			
Small active scavengers, sometimes occurring in large numbers.			
Psocidae			
Amphigerontia bifasciatus (Latrielle)	+	se	Pw
Caecilius perplexus Chafius	+	se	Pw
Ectopsocus californicus (Banks)	+	sw	Ps
Graphopsocus conterminus (Walsh)	+	sw	Ps
Mesopsocus unipunctatus (Mueller)	+	s	Pw,Ps
THYSANOPTERA: thrips			
Small plant feeders.			
Phloeothripidae			
Gnophothrips fucus (Morgan)	+	sw	Ps
Haplothrips mali (Fitch)	+	sw	Ps

	Occurrence	Distribution	Host
TRICHOPTERA: caddisflies Aquatic "case-bearers".			
Limnephilidae The following are sheltering records.			
Clistoronia magnifica Banks	+	se	Pw
Dicosmoecus unicolor Banks	+	sw	Ps
Hesperophylax incisus Banks	+	ci	Pl
Limnephilus sp.	+	ne	Pl
Nemotaulinus hostilis (Hagen)	+	ci	Pl

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